Trends in follow-up colonoscopy after a positive stool-based screening test for colorectal cancer among health care organizations in the United States

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AcademyHealth ANNUAL RESEARCH MEETING

BACKGROUND AND OBJECTIVE

- At-home stool-based screening tests (SBTs) are less invasive, more convenient, and potentially less expensive than colonoscopy offering an effective alternative for colorectal cancer (CRC) screening.[1]
- A positive SBT result requires a timely follow-up colonoscopy (FU-CY), recommended within six to nine months, to complete the CRC screening paradigm.[2]
- The objective of the current study was to assess FU-CY rates within the year following a positive SBT result [fecal immunochemical test (FIT) or multitarget stool DNA test (mt-sDNA)] overall, across patient-level characteristics, and by test modality, to determine which factors influenced rates of FU-CY.

STUDY DESIGN

- This mixed-methods study included retrospective analysis of de-identified administrative claims and electronic health record data between June 1, 2015, and June 30, 2021, from the Optum Labs Data Warehouse, and interviews with 7 providers from 5 health care organizations (HCOs).
- Kaplan-Meier curves were created to compare FU-CY rates within 3, 6, and 12 months of a positive SBT; a multivariate Cox proportional hazards model quantified the impact of patient characteristics, test type, and health care organization (HCO) on FU-CY rates.
- Interview questions focused on perceived barriers and facilitators of FU-CY at the patient, provider, and organization levels, as well as perceptions around the use of SBT for initial CRC screening and subsequent FU-CY.

STUDY POPULATION

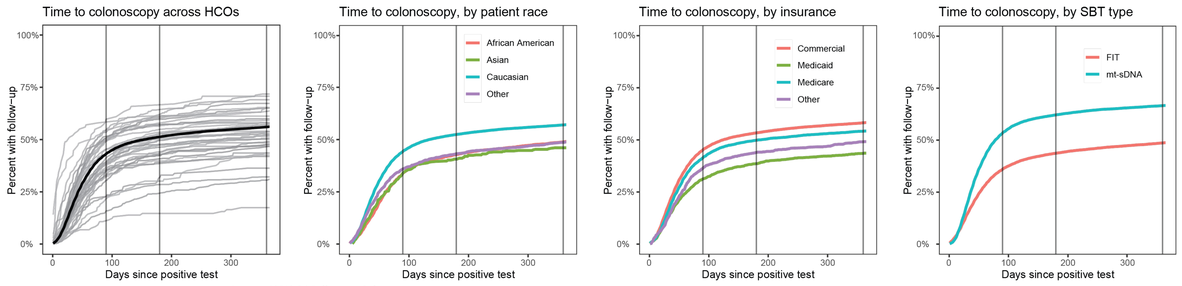
- Eligible patients had a positive SBT result between June 1, 2015, and June 30, 2021
- Patients were of average risk, between the ages of 50 and 75
- Required primary care visit in 15 months prior to SBT result, and active at least 90 days
- Excluded if prior evidence of CRC, or more frequent CRC screening requirements

Patient Characteristics (n=32,769)

Age, n (%)	
50-59	10,874 (33.2)
60-69	14,463 (44.1)
70-75	7,432 (22.7)
Male, n (%)	15,840 (48.3)
Race, n (%)	
Caucasian	28,832 (88.0)
African American	2,092 (6.4)
Asian	469 (1.4)
Other/Unknown	1,376 (4.2)
Ethnicity, n (%)	
Non-Hispanic	30,013 (91.6)
Hispanic	825 (2.5)
Unknown	1,931 (5.9)

PRINCIPAL FINDINGS

Overall rates of follow-up colonoscopy are low, with significant differences across sub-populations

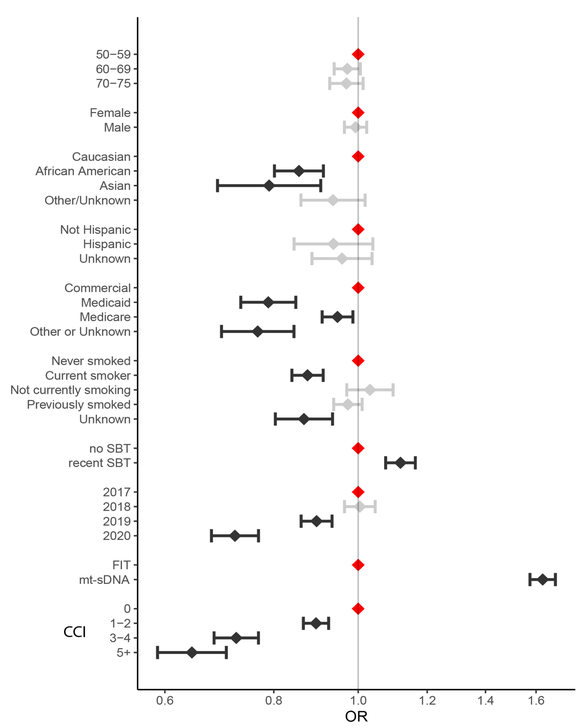


Percent (95% CI) Follow-up Colonoscopy

	Day 90	Day 180	Day 360
Overall	**43.3% (42.7%-43.8%)**	**51.4% (50.8%-51.9%)**	**56.1% (55.6%-56.7%)**
Caucasian	44.4% (43.9%-45.0%)	52.5% (52.0%-53.1%)	57.2% (56.6%-57.7%)
African American	33.9% (31.8%-35.9%)	42.9% (40.7%-45.0%)	49.0% (46.8%-51.1%)
Asian	34.0% (29.6%-38.2%)	40.7% (36.1%-45.0%)	46.2% (41.4%-50.6%)

- Over 40% of patients fail to receive follow-up, with variability across HCOs and across patient sub-populations.
- Most FU-CY occur within first 90 days after test result.

Cox model (adjusted for HCO) identified patient level factors



- Cox survival analysis confirms disparities across patient groups (adjusted for HCO identity, coefficients not shown)
- Most significant positive factor was the use of mt-sDNA
- Complex patients with a higher number of comorbidities (high Charlson Comorbidity index, CCI) had the lowest rates of follow-up after adjustment

Themes from provider interviews

Lack of knowledge about failure to follow-up

All providers expressed surprise at the low follow-up rates. Only one of the HCOs represented in interviews was currently tracking follow-up rates after a positive SBT, although all tracked initial screening test rates.

"Until we had this conversation, I assumed [the follow-up rate] was 100%."

"I think sharing data is excellent, I wish we were doing more "

Patient hesitancy around colonoscopy

Providers reported that not all patients are willing to have a follow-up colonoscopy even after a positive test.

- Discomfort with the colonoscopy preparation and procedure as a main concern of patients.
- Cost: follow-up colonoscopies after a SBT may be billed at a higher rate, or not covered.

"Something as simple as the prep [for a colonoscopy] makes a big difference to patients. That's the biggest thing that patients don't want to go through"

Trust and communication

All providers stated that they discuss the potential need for follow-up at the time of ordering the stool-based test. Three providers listed discussions with patients as the biggest facilitator to completing follow-up.

"As a provider, they trust you and your recommendations"

FIT vs mt-sDNA difference

Providers mentioned over-screening (with FIT) as one potential factor that may lower FU-CY rates. Some also reported a belief that patients may take the results of mt-sDNA more seriously and prioritize follow-up.

IMPLICATIONS FOR POLICY AND PRACTICE

- Rates of follow-up colonoscopy after a positive SBT are alarmingly low in this screen-eligible average-risk population. Addressing this care gap is critical to achieving the population health benefits of initial screening with SBTs.
- Qualitative interviews suggested that most providers were unaware of these low FU-CY rates, suggesting a need for timely and transparent reporting of FU-CY rates.
- Additionally, significant disparities in follow-up CRC care warrant targeted interventions for minority groups focusing on their needs.

CONCLUSION

Over 40% of patients with a positive stool-based CRC screening test result failed to complete a follow-up colonoscopy within 1 year

- In our study, only 56% (95% CI, 55.6%-56.6%) had a required follow-up diagnostic colonoscopy within approximately one year (360 days) of the positive SBT result (FIT or mt-sDNA).
- Few providers appreciated this care gap, with all providers interviewed in this study expressing surprise at the low rates of follow-up.

Significant disparities exist across patient subpopulations

- Significant disparities were observed according to patient race, insurance type, and number of comorbid conditions.
- Patients who used mt-sDNA rather than FIT tests were significantly more likely to complete follow-up, though the exact reason for this difference is yet to be determined.
- After adjusting for patient characteristics, organization variability remained (not shown) suggesting that HCO attributes (e.g., policies, procedures, or resources) have a large impact on follow-up rates.

REFERENCES

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