Interactive App Improves Colorectal Cancer Screening Rates

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Although screening for colorectal cancer has been shown to decrease deaths from the disease, only about two-thirds of Americans are up to date with screening.

Now a new study suggests that giving people an easy way to order their own screening tests may help increase the number of people who get screened.

In the NCI-funded study, people waiting to see their doctors for routine checkups were given a tablet computer loaded with an interactive app that provides information about the need for colorectal cancer screening, helps patients make decisions about screening, and allows them to "self-order" their own screening test. People who used the app, the study showed, were twice as likely to be screened as those viewing a video that did not provide information about screening or the option to order a test.

The "interesting and innovative" aspect of the approach used in the new study is that "once patients made a choice about screening, they had the opportunity to order the test themselves," said health care delivery researcher Caitlin Murphy, PhD, M.P.H., of the University of Texas Southwestern Medical Center, who was not involved in the new study.

The findings were published March 13 in the Annals of Internal Medicine.

Clinical Trial Included Those Most Likely to Face Barriers to Screening

The US Preventive Services Task Force recommends screening for colorectal cancer for average-risk adults ages 50–75 with a colonoscopy once every 10 years or a stool-based test every year. People with an abnormal stool test result (signs of blood in the stool) are advised to undergo a colonoscopy to investigate the cause.

Many factors contribute to low screening rates in the United States, including fear of the procedure and/or the preparation; lack of awareness of the need for screening; and absent or inadequate doctor-patient discussions about screening. Screening rates are particularly low among people with less education or low incomes.

Researchers have tested different approaches to increasing colorectal cancer screening rates, such as small financial incentives and mailed invitation letters and free testing kits, and found varying levels of success.

In the new study, David P. Miller, Jr., MD, of Wake Forest School of Medicine, and his colleagues tested the Mobile Patient Technology for Health-CRC (mPATH-CRC) app, which they designed for people with low health literacy and low computer literacy, at six community-based primary care practices in North Carolina.

Of the 450 study participants, 37 percent were assessed as having limited health literacy and 53 percent had annual incomes of less than $20,000. Most were non-Hispanic white (57 percent) or African American (38 percent). The study was limited to English speakers.

Participants were 50–74 years old, scheduled to see a primary care provider, and due for colorectal cancer screening.

The mPATH-CRC app tells patients about the two tests most commonly used to screen for colorectal cancer in the United States, colonoscopy and fecal occult blood testing, which looks for hidden (occult) blood in patient stool samples, and helps them decide which test to use.

Patients who had agreed to participate in the study were asked to arrive 45–60 minutes before their primary care appointment to use the app. They were then randomly assigned to use either the mPATH-CRC app or a control app that included a video about diet and exercise and did not give patients the option to self-order screening tests.

Primary care providers of patients who self-ordered a screening test with the app were notified and asked to approve or deny the test order. Patients who self-ordered a screening test received a series of automated follow-up email or text messages to help them follow through with the test.

App Improved Screening but Left Room for Improvement

Of the 223 participants assigned to the mPATH-CRC group, 30 percent completed a screening test within the study's 24-week follow-up period, compared with 15 percent of 227 people in the control group.

But the 30 percent screening rate "is still far from ideal," Miller said.

Murphy noted that it's also important to consider how many patients who chose a stool-based test went on to complete a diagnostic colonoscopy as recommended if they had an abnormal stool test result. Although the study team does not have complete data on this, Miller said, they know that at least some of the people who had an abnormal stool test result went on to have a colonoscopy.

And the researchers did look at detection of colon polyps (precancerous growths) and cancers in both groups. They found 15 people with polyps and one with cancer among those who used the

app, compared with only 6 people with polyps in the control group.

“That suggests that for every 22 people who use the app, we’ll find polyps in one extra person—and that’s potentially one person we will prevent from getting colon cancer,” Miller said.

The researchers were surprised to find that roughly half (53 percent) of patients in the mPATH-CRC group ordered a test for themselves via the app. This was a higher number than expected, Miller said.

“Clearly patients are willing to do the screening test, but something is happening on the [health-care] system or clinic side of things that’s preventing some of them from completing it,” Murphy said.

Further improving screening rates will require figuring out how to “incorporate system-level changes and practices that empower patients to play a more active role in their health care, and how to better support patients who fail to complete ordered tests,” Miller said.

One simple, cost-effective approach could involve phone calls by patient navigators to patients most likely to need extra support to complete screening, he continued.

Miller’s team recently received NCI funding for a follow-up trial to be conducted with partners at the University of Kentucky. The researchers plan to investigate the level of support that community-based health clinics need to implement mPATH-CRC and improve screening rates.

New Ways to Engage with Patients Are Needed

“When patients have the ability not just to choose the test but also to say, ‘I want to order the test,’ they’re more likely to get screened,” Murphy said.

A previous study of the decision aid by Miller’s team did not allow patients to self-order tests, and in that study the decision aid did not have an effect on screening.

The new study also found that patients in the mPATH-CRC group were more likely than those in the control group to prefer a stool-based test.

Giving patients a choice of screening tests is important, Murphy said—not just in terms of personal preference but also for financial reasons, particularly for people who may not have health insurance or cannot easily take extra time off from work to have a colonoscopy.

“Our natural inclination to recommend colonoscopy [for screening] in the United States may be harmful, in that a patient may think, ‘I can’t afford a colonoscopy so I guess I can’t get screened,’ whereas if they knew a stool test was available, they might get screened,” Miller said.

“Despite its success, this trial missed…opportunities that might have made it even more

transformative," wrote David Asch, MD, MBA, and Shivan Mehta, MD, MBA, of the Center for Health Care Innovation at the University of Pennsylvania, in an editorial on the new study.

For one thing, they noted, encouraging colorectal cancer screening does not have to take place in the context of a clinic visit.

"In the end, the goal is not to get more primary care patients in the clinic screened, but to get more people screened—a goal that invites the use of smartphones, social networks, and other elements of daily life," Drs. Asch and Mehta wrote. "[T]he active ingredients of transformative change are likely to come from new ways to engage with patients outside of office visits and other traditional processes of care."

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