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ReachMD
www.reachmd.com
info@reachmd.com
(866) 423-7849

Colorectal Cancer Screening: Evaluating the Cost-Effectiveness of Noninvasive Options

Dr. McDonough:
This is *Clinician's Roundtable* on ReachMD. I'm Dr. Brian McDonough. And joining me to discuss their research on the cost-effectiveness of noninvasive colorectal cancer screening are Drs. Gloria Coronado and Carolyn Rutter. Dr. Coronado is a Professor of Epidemiology and the Associate Director of Population Science for the University of Arizona Cancer Center.

Dr. Coronado, welcome to the program.

Dr. Coronado:
Thanks for having us.

Dr. McDonough:
And joining us is Dr. Rutter, who is a Professor in the Biostatistics Program and Principal Investigator for a Cancer Intervention and Surveillance Modeling Network, or CISNET, team at Fred Hutch Cancer Center.

Dr. Rutter, thanks for being here.

Dr. Rutter:
Great to be here. Thanks, Brian.

Dr. McDonough:
Let's start with you, Dr. Coronado. Could you give us some background on your recent study and what prompted your team to explore the cost-effectiveness of colorectal cancer screening strategies, particularly in populations with historically low adherence rates?

Dr. Coronado:
Our study really focused on the impacts of COVID on screening and follow-up for breast, cervical, and colorectal cancer, and as we dug into the data on the impacts of COVID on colorectal cancer screening, we realized that there was a big push to increase stool-based testing. And there were some health systems that were expanding their screening options during this time because there were limits on the numbers of colonoscopies that were being performed, and there were additional policies that were being put in place surrounding patients needing to mask when they go into the facility. They also needed to show proof of a negative COVID test prior to their scheduled colonoscopy procedure, and there were also limits on the numbers of colonoscopies that were being performed because of social distancing requirements, and so there's a prioritization of the more urgent colonoscopy procedures. So patients that were going in for screening colonoscopies or even ones that were done as a follow-up to an abnormal stool-based test were really considered a mid-range priority. So patients who had symptoms or were high risk for colorectal cancer were being prioritized, and there was a hierarchy of priority.

So a lot of systems ended up using more stool-based testing, and a really interesting question that was attempted to be answered in the analysis by Dr. Carolyn Rutter and her group is, how do we think about the cost and the cost-effectiveness of a variety of screening tests that are available? And we also know that in 2024, there was a blood-based test that got FDA approval and met the CMS requirements for reimbursement as well, and so that particular test was developed by Guardant Health. Our team had done some prior work with that company to look at how likely patients would be to undergo blood-based testing, and we gathered a lot of qualitative data on what their experience was and what providers thought about it. So this was a really nice opportunity for us to think about how we compare the different options for colorectal cancer screening.

Dr. McDonough:
Turning to you now, Dr. Rutter, how was the study designed?

Dr. Rutter:
Well, when you introduced me, you talked about CISNET, and CISNET is a modeling group. This was a modeling study. So with the support of the National Cancer Institute, we developed a model that simulates the development of colorectal cancer in individuals. So what that means is we simulate development of polyps, and these polyps have the potential to go on to become colorectal cancer. It only happens in, fortunately, a very small fraction of those polyps. And so these models that we build synthesize a lot of information we have about the various steps in developing colorectal cancer, so polyp prevalence and incidence of colorectal cancer by age and sex. And for this particular model that we used for the study, we made sure to match the colorectal cancer incidence in California's Hispanic population because that was the population that we were simulating outcomes for.

So models are really cool because they are such a powerful tool, and they allow us to explore different screening regimens. So when Gloria was talking about looking at different screening approaches—so a blood test or a stool test or maybe even colonoscopy itself—if you wanted do that in real life, you'd need to randomize people to each of those types of tests. In a model, you can simulate the outcomes. So you've validated this model, you have confidence in it, and then you can simulate what would happen if we didn't screen at all; what would happen if we screen with a FIT test; what would happen if we screen with a blood test. And for this paper, what we looked at was the FIT test and the blood test, but we looked at it under the assumption of imperfect adherence.

So this is a problem we have with colorectal cancer screening. Understandably, people don't like to undergo screening, and in some populations, there are barriers to screening. So those barriers might be having to take off work to get the colonoscopy. There are financial barriers. There may even be cultural barriers because of the test itself. So an important barrier is that, with the exception of colonoscopy, if you have one of these noninvasive tests and if the test is abnormal, then you need to go in and have the colonoscopy. That colonoscopy would then identify if cancer is present or if there may be polyps present that are removed at the time of colonoscopy. And especially for FIT, FIT can detect those polyps, and so a big action of FIT is it's preventive. Prompt colonoscopy then removes adenomas, thereby interrupting the disease process and preventing colorectal cancer. How great is that?

Dr. McDonough:
So, Dr. Coronado, if we zero in on the results, could you tell us about your findings on the most effective screening strategy?

Dr. Coronado:
Yeah, absolutely. And I want to couch the findings in the larger picture of colorectal cancers. We know that there's over 50,000 people who die each year from colorectal cancer. It's the second leading cause of cancer death in the United States. Three-quarters of the people that die from colorectal cancer are not up to date on their screening, and we know that screening can reduce more than half of those deaths, and so screening is incredibly effective at preventing deaths from colorectal cancer. And 80 percent of the benefit of screening comes from prevention. And how do you prevent colorectal cancer? You remove the polyps from your colon. So you can think of your colon as a garden, and the garden grows weeds, and so the doctor goes in and pulls the weeds or take the polyps out of your colon. That's the whole point of a colonoscopy, and 80 percent of the benefit comes from the removal of polyps. The other 20 percent comes from early detection of earlier-stage cancers,

But I think what we found is that it used to be that the best test is the one that gets done. That was what was nationally talked about. And now what people are saying is it's actually not the best test that gets done and that there really are differences both in the quality and the cost-effectiveness of different tests that are available for colorectal cancer screening. And so what we see are the best tests in terms of effectiveness and cost-effectiveness are colonoscopy and low-cost stool-based testing.

Dr. McDonough:
For those just joining us, you're listening to *Clinician's Roundtable* on ReachMD. I'm Dr. Brian McDonough, and I'm speaking with Drs. Gloria Coronado and Carolyn Rutter about their research on cost-effective and noninvasive screening strategies for colorectal cancer.

So, if we continue to look at the results from your study, Dr. Rutter, what can you tell us about the effectiveness of the newer blood-based tests?

Dr. Rutter:
Who wouldn't love a blood-based test for colorectal cancer? That would be great. But the problem is the currently available tests can't detect those precursor lesions. They don't detect the polyps, so you lose a surprising amount of effectiveness just because of that, because you're not getting that prevention. Then you've got a double whammy because the tests are only recommended every three years, not every year, so that gives you more time to miss a cancer. And then kind of the knockout blow here is the cost. These are very expensive tests relative to the other stool-based tests. They're right now around 900 dollars. The stool-based tests can range from 25 to

500 dollars. So if somebody's had a blood-based test and it's abnormal and then they don't have the follow-up colonoscopy—maybe they have barriers to getting that colonoscopy—there's no benefit from the test, and the money on that test has essentially been wasted because there's been no follow-up.

I think there's going to be a lot more news about these blood tests because people are so excited, and I think there's a lot of work to try to find a blood test that can detect these precursor lesions, but they're not there yet. So right now, blood tests are the most expensive test, and they're the least effective test. And yes, they are better than no test at all, but if you can get yourself to undergo one of these stool-based tests or even colonoscopy, that's going to be so much better.

Dr. McDonough:
Now, given these findings, Dr. Coronado, what interventions do you think are most promising for improving both initial screening and follow-up colonoscopy adherence in underserved communities?

Dr. Coronado:
It's really important to get the word out. The first message is "Get screened and talk to your friends and family about getting screened." My sister back in 2018 or 2019—right before the pandemic—called and said, "I had one of those poop tests for colorectal cancer," and I said, "Oh yeah, I know about those tests. I think about them every day." And she said, "And it was abnormal," and I said, "Oh, that's a bummer." And she said, "Yeah, it was probably my hemorrhoid, but then I got a colonoscopy, and I found out I have stage II cancer." And so on her very first FIT test and colonoscopy at the age of 51, she found out that she had stage II cancer. I said, "Screening saved your life, because had you not gotten screened when you did, your cancer would have progressed and your chances of survival would have been much lower."

So it's very basic messaging about getting screened making sure your friends and family are getting screened. Use a low-cost stool-based test or get a colonoscopy. If you have an abnormal stool-based test result, make sure that you get that follow-up colonoscopy, because those people have about a one in 20 chance of having a cancer found. And so it's critically important that we make sure that those patients get in. And it's about, informing people what the steps are in getting a colonoscopy, making sure that we're supporting them in taking time off work and that they have insurance and resources available, so that we are putting our resources toward actually preventing cancer and finding it in early stages because ultimately, that's our goal.

Dr. McDonough:
As we come to the end of our program, Dr. Rutter, do you have any final insights on the future of colorectal cancer screening that you'd like to share?

Dr. Rutter:
I just want to mention the increasing risk of colorectal cancer in young adults, which is anyone under 50. We're seeing these big increases in colorectal cancer incidents at young ages. These are people without a family history. So screening now begins at age 45. I think Gloria and I are probably two people who, if you invite us over to dinner and the topic comes around to it, we will say, "Have you been screened? Please get screened" because it is so effective. If you're under 45, you're not eligible for screening, but if you have symptoms, talk to your doctor. Don't let it go. Don't say, "Oh, you know, I'm feeling weird, just feeling not right, but I'm young." Really, have it followed up. It's very important.

Dr. McDonough:
With those insights in mind, I'd like to thank my guests, Dr. Gloria Coronado and Carolyn Rutter, for joining me to review recent findings on the cost-effectiveness of noninvasive screening strategies for colorectal cancer.

Dr. Coronado, Dr. Rutter, it was great having you both on the program.

Dr. Coronado:
Thank you so much.

Dr. Rutter:
Thank you.

Dr. McDonough:
To access this and other episodes in this series, visit *Clinician's Roundtable* on ReachMD.com, where you can Be Part of the Knowledge. I'm Dr. Brian McDonough. Thanks for listening.