Creating a roadmap to reducing colorectal cancer deaths

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Rush's Joshua Melson, MD, is the lead author of "Roadmap to Reducing Colorectal Cancer Deaths" Credit: Rush Production Group

Fewer people would die of colorectal cancer if health care providers adopted a new model of screening that combines better risk assessment, more options for noninvasive testing and more targeted referrals for colonoscopy.

That's the course laid out by the American Gastroenterological Association (AGA) in a white paper titled "Roadmap for the Future of Colorectal Cancer Screening in the United States" published in July.

"If we offered tests that were convenient, accurate and lower cost, and we could help people choose the best option based on their individual cancer risks, we would save more lives," said lead author, Joshua Melson, MD, MPH, associate professor, Rush Medical College, and a member of the AGA Center for GI Innovation & Technology.

The paper sets the target and the steps for scientists and industry partners to take in exploring new biomarkers and developing tests that will turn the tide.

The sooner, the better.

At least one if four Americans who should be screened for colorectal cancer has never been tested. Yet colorectal cancer (CRC), the nation's second deadliest cancer, is highly preventable and treatable when found early. That's after years of effort to increase compliance with testing recommendations.

The AGA gathered 60 experts in gastroenterology and research to envision how screening could reach its full potential. Their conclusion: To significantly reduce the number of colorectal cancer cases and deaths would require a universal approach to screening that reaches more people and offers alternatives in addition to colonoscopy.

"Approximately 67% of eligible Americans are screened for colorectal cancer. We need to improve our strategies to curb the cancer that ranks second for deaths in the U.S.," said Sri Komanduri, MD, AGAF, chair of the AGA Center for GI Innovation and Technology. "AGA is proud to introduce this white paper—the first step in our mission to develop a more structured screening program that can increase screening rates, catch more colorectal cancers early, and save countless lives."

Currently, CRC screening usually begins when a physician recommends a colonoscopy based on the patient's age or other risk factors. The colonoscopy allows the gastroenterologist to fully examine the colon and remove any precancerous polyps that are found. Polyps are found about a quarter of the time. But having a colonoscopy requires scheduling well ahead of time, taking time off work, arranging a ride home and going through a bowel-emptying routine.

A new approach would:

- Offer noninvasive testing upfront, such as stool testing, and integrate these options with colonoscopy.
- Share decision-making with the patient and consider personal risk factors: colonoscopy for those at high risk, or initial noninvasive testing for those at lower risk.
- Assign colonoscopy when it would provide the greatest benefit, rather than as the default screening method. This would improve access to patients who most need a colonoscopy.
- Systematically initiate screening, follow-up testing and surveillance, rather than rely only on a physician's recommendation.
- Ensure appropriate screening is readily available to at-risk individuals, with no social, racial or economic disparities.

To make this vision a reality, the authors set a course for development of affordable, highly accurate, easy-to-use noninvasive tests, as well as research into how best to integrate the different types of tests and who would benefit most from each based on individual risk factors.

Two noninvasive tests in use today are the stool-based fecal immunochemical test (FIT) and the multi-target stool DNA test (MT-sDNA).

FIT, which looks for hidden blood in the stool, is the most readily available. The MT-sDNA has emerged as an alternative to FIT that is more sensitive in detecting colorectal cancer but less specific in its findings. Both tests can identify markers of large colon polyps and cancer. MT-sDNA tests carry a higher price—more than $500 compared to about $25 for FIT.

"The ideal test needs to be highly sensitive and highly specific, as well as convenient, with low risk and low cost," Melson said. "It would identify lesions that have a high potential to progress to colorectal cancer in the short term."

To achieve that goal, the AGA initiative defined targets for industry partners and scientists who are developing colorectal cancer screening tests and exploring novel molecular biomarkers, including biochemical, microbiome, genomic, proteomic or epigenomic markers. With input from the major endoscopic and noninvasive testing companies, the authors defined criteria for meaningful endpoints of what are the important lesions a noninvasive marker would be able to detect and at what level of accuracy, in an affordable way.

The authors set forth the aspirational goal of developing a minimally invasive, easy-to-use test that will "detect advanced adenomas and advanced serrated lesions with a one-time sensitivity and specificity of no less than 90%."

In addition, all types of CRC screening would benefit from a better understanding and more thorough identification of risk factors to help identify the most appropriate screening for the individual patient.

Thanks to advancements in electronic health records, health care providers can share information across institutions that will provide a full picture of the patient's medical history, including screening history and results. This would allow for more accurate risk assessment paradigms that include past colonoscopy polyp data, molecular markers if found, and family history.

With a clearer risk assessment, the provider and patient could share in deciding the most appropriate test—colonoscopy for those at high risk, or initial noninvasive testing for those at lower risk. Also, more thorough risk assessment would reduce the number of colonoscopies performed that provide little benefit and flag those patients who would benefit most from colonoscopy. Test rates would benefit from patient buy-in and from easier access.

Ultimately, these advances will support the development of organized screening programs that can identify and connect people who need to be screened with the testing best suited for them.

More information: Joshua E. Melson et al, AGA White Paper: Roadmap for the Future of Colorectal Cancer Screening in the United States, *Clinical Gastroenterology and Hepatology* (2020). DOI: 10.1016/j.cgh.2020.06.053

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