Behavioral Nudges in Study Increase Germline Genetic Testing Referrals but Not Patient Uptake

At AACR, a study explored the impact of a chain of default notifications in prompting physician referrals and patient adoption of genetic testing in colorectal cancer patients.

By Catherine Shaffer

BEHAVIORAL NUDGES to encourage uptake of germline genetic testing among patients with early-onset colorectal cancer increased referrals from doctors but ultimately did not increase testing rates among patients, a study has shown.

The research presented at the annual meeting of the American Association for Cancer Research highlights the complexity of ushering patients through genetic testing within the US healthcare system.

"Despite the transformative nature of precision oncology in cancer care in recent decades, we've seen multiple studies report on suboptimal biomarker testing rates, suboptimal targeted treatment rates, as well as suboptimal cancer risk management across tumor types," Kelsey Lau-Min, a medical oncologist at the Massachusetts General Hospital Cancer Center, said during a presentation at the meeting. However, Lau-Min is optimistic that behavioral economics can make a difference.

In that field "a nudge" is a method that alters the architecture of individual choices, particularly the environment in which day-to-day decisions are made, while not blocking options or shifting economic incentives. There are different nudges of varying strength, from giving patients or providers neutral information in a document, to using stronger language in the same document intended to prompt patients to make a decision, to guiding patient choice through default options, including the choice to opt out.

Lau-Min and her colleagues conducted research

to gauge the impact of behavioral nudges on germline genetic risk evaluations in patients with early-onset colorectal cancer. Between 5 percent and 15 percent of colorectal cancers are caused by inherited mutations in cancer susceptibility genes. Germline genetic testing for these mutations can help patients and their relatives get more frequent cancer screening and personalized treatment.

However, one analysis of nearly 56,000 patients with colorectal cancer diagnosed in 2020 found that only 1,675, or 3 percent, received germline genetic testing, even though that same year some health insurance plans began covering germline genetic testing universally for patients diagnosed with colorectal cancer.

To see if behavioral nudges could get more patients referred for germline genetic testing, Lau-Min and colleagues identified eligible patients using electronic health records and notified doctors that their patients would learn of their testing eligibility. Patients then received a notification that their oncology team had recommended the testing, and unless the patient opted out, they were referred for it. The patient was then free to go through the testing process.

Researchers enrolled 53 patients in the study, with one physician opting out an international patient who lacked insurance coverage. Out of 52 patients, three opted out, resulting in a 92 percent referral rate, a "considerable" increase from the baseline rate of 58 percent, Lau-Min said. "We were really thrilled to see that … the default approach seems to work," she said.

However, downstream, when her team looked at the number of patients who followed through and received genetic testing, just over 20 percent completed the process. "We didn't necessarily see the testing rates that we were hoping for," Lau-Min acknowledged.

Lau-Min said she would like to see more research on the impact of behavioral nudges in driving precision oncology adoption. Although behavioral nudges are used in the field, "we haven't actually seen very much data emerge in this … space," she noted.

In one study published in *Genes* in 2021, researchers randomized about 1,000 healthy volunteers to six different types of framing for messages about hypothetical genetic testing scenarios, one of which was whether the volunteer would opt into hereditary breast and ovarian cancer testing. The framings included a simple statement that the patient was eligible for testing, opt-in and opt-out approaches, and three types of enhanced choice framings. Enhanced choice framings included statements such as "you may be at risk for later cancer diagnosis and treatment," or a statement to try to normalize genomic testing by telling patients, for example, that most people choose to get it. In that study, 80 percent of patients chose genetic testing, but the groups who got stronger nudges were more likely to choose it.

In the field of precision oncology, among the various methods for nudging patients and doctors toward genetic testing, oncology clinical pathways are one of the most impactful, according to Lau-Min. Oncology clinical pathways are detailed evidence-based protocols for delivering quality cancer care, which balance positive factors such as the efficacy of a therapy against negatives such as safety, toxicity, and cost.

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"In the field of precision oncology, we've had a lot of attention paid to oncology clinical pathways because they're thought to facilitate the delivery of personalized care," said Lau-Min. "Even though these aren't necessarily presented as behavioral nudges, I would argue that if a practice or an institution makes the conscious decision to use and incorporate clinical pathways, that is in essence prompting an implementation commitment."

Oncology clinical pathways are often coupled with other types of behavioral nudges that help clinicians deliver high-quality care, such as clinical decision support, a process that provides individualized, patient-specific recommendations to clinicians at the point of care and is often incorporated into a patient's electronic health record or other health information-based tools. Lau-Min said that a molecular tumor board (MTB), comprising experts who review molecular testing results and make treatment recommendations, can also prompt behavior change. Through the use of MTBs, "we've seen potential improvements in things like molecular testing interpretation, targeted treatment matching, enrolling to clinical trials, and ultimately improvements in patient outcomes," said Lau-Min. "In addition, we've seen improvements in capturing data and standardization of clinical care."

Health systems that have invested in MTBs have begun tracking their impact within precision oncology programs. For example, in November, Providence health system found that within the first six months of implementing an MTB, 62 percent of 30 patient cases taken up by the board received a recommendation for targeted therapy or immunotherapy.

Lastly, the use of defaults has become a common nudging method in precision oncology in the form of reflex or automatic testing, for example, when evaluating patients' HER2 status in breast cancer or mismatch repair deficiency in colorectal cancer. "Often what comes as a result of that actually becomes more of a reflexive or an automatic downstream pathway" that leads to review by an MTB and matching patients to a targeted therapy or a clinical trial, Lau-Min explained.

These nudges are often implemented as part of a large-scale program within an institution, which can make it difficult to study the impact of a specific nudge on a patient. Still, Lau-Min and colleagues attempted to identify why the nudges in their study failed to increase genetic testing uptake among patients.

Some of the barriers that Lau-Min's team identified included failure to reach patients by phone, difficulties scheduling testing, patients having competing priorities that hindered their ability to get testing, and patients failing to return saliva sample collection kits. Some patients in the study could not be scheduled for testing within the designated three-month period.

"A lot of this begs the question, are there other types of nudges that we could think about?" wondered Lau-Min, noting that while researchers used some of the strongest nudges in this study, "even some of those approaches did not appear sufficient."

Lau-Min said her team received "overwhelming feedback" from patients that they preferred to have the conversation about genetic testing with their oncology team. "This could be a place where nudging the clinicians to have this more in-depth conversation could be helpful," she suggested. PMQ

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Catherine has been a reporter with *Precision Oncology News* since 2022 where she focuses on the latest advances in genomics and drug discovery as they relate to the development of personalized medicines for cancer. Prior to that, she covered science and biotechnology for a number of other publications, including *Genetic Engineering and Biotechnology News, Nature Biotechnology,* and *BioWorld Today*, as well as on-air regional news for NPR affiliate WUOM in her hometown of Ann Arbor, Michigan. Catherine is also an award-winning science fiction author. Her stories have appeared in numerous magazines and anthologies *Analog* and *Nature's Futures*. Catherine has a bachelor's degree in biochemistry from Michigan State University and a master's in biological chemistry from the University of Michigan.