

## A black and white photograph of a newspaper page. A magnifying glass is held over the text, focusing on the word "CANCER?" which is part of a headline. The word is in a large, bold, serif font. Below it, smaller text is visible but mostly obscured by the magnifying glass and the focus. To the left of the magnifying glass, another headline is partially visible, mentioning "Abigail Fisher, a white Texas who has sued University of Texas not admitting her, the policy that led her rejection also Asian-Americans". To the right, another headline mentions "erotic novel" and "sales of F". The background shows the texture of the newspaper paper and the blurred text of other articles.

Even as it's become clear that an inherited susceptibility to some cancers is more common than once thought, genetic testing of family members

of cancer patients hasn't increased as much as experts had hoped. A new study led by researchers at Dana-Farber Cancer Institute and Brigham and Women's Hospital demonstrates that a remote online genetic education program can be a powerful motivator for people with a family history of cancer to undertake genetic testing.

The GENetic Education, Risk Assessment, and TEsting (GENERATE) study included 601 people from across 45 states who had a close relative with the most common form of pancreatic cancer. Participants received genetic education through one of two remote online programs. After participating in one of the two genetic education interventions, 90% of the participants completed testing for inherited variations in more than a dozen genes linked to pancreatic cancer.

Participants' reactions to being tested bolstered the impressive response to the remote genetic education programs. The 400 participants who completed a questionnaire on their experience indicated that testing did not spark anxiety, depression, or worries about cancer after receiving their [genetic testing](#) results.

"We know that 5 to 10 percent of all cancers are linked to inherited genetic variations. We know the specific variants linked to those cancers. And we know that cancer incidence and mortality can be reduced by identifying people who carry those variants and intervening to lower their [cancer risk](#) or closely monitor them to detect cancer at its earliest stages when it is most treatable," says study senior author Sapna Syngal, MD, MPH of the Dana-Farber Cancer Institute.

"But we also know that not enough people who could benefit from genetic testing are being tested."

Among the potential barriers to testing are a limited public understanding of inherited cancer risk, lack of communication between

an individual with cancer and [family members](#) who may be at risk for it, out-of-pocket costs, and a lack of nearby testing services and genetic counselors.

"We need new methods to make testing more available and increase awareness of its benefits," Syngal remarks. "The goal of this study was to assess how remote genetic education programs that people could access at home, online, might impact the decision to have genetic testing."

The study was open to people 18 years or older who had a first-degree relative with pancreatic ductal adenocarcinoma (PDAC) or a first- or second-degree relative with PDAC and an inherited variation in any of 13 genes linked to the disease. Participants were recruited through social media advertisements, [pancreatic cancer](#) advocacy organizations, and the six institutions collaborating on the GENERATE study.

The 601 participants, representing 424 families, were randomly assigned to one of two groups. One group participated in an interactive genetic education video session and viewed a seven-minute genetic [education program](#) narrated by a cancer physician.

The other group had access only to an online genetic education program through a commercial laboratory website. Both groups had access to all materials in the online genetic education program available through the commercial laboratory website.

After completing the program, 541 participants, representing 90% of the entire study group, elected to undergo testing for inherited variations in PDAC-linked genes—opting to receive a saliva-based genetic testing kit shipped to their homes that they would then use to send a sample by mail to a testing center.

One of the most encouraging aspects of the study is the geographic range

of the participants, researchers said. More than half of all those who enrolled in the study were not family members of patients at the six study sites, suggesting they heard about the study through social media or advocacy organizations.

"This demonstrates that online education is a real option for people who may not live near a genetic counseling center or testing facility," says the study's first author, Nicolette Juliana Rodriguez, MD, MPH, of Dana-Farber and Brigham and Women's Hospital.

All participants completed surveys of their psychological well-being—including feelings of anxiety, depression, and cancer worry—when they enrolled in the study, followed by questionnaires when they completed the program and three months later. Among the 400 who completed the questionnaires, the remote genetic education and testing programs had no impact on their anxiety, depression, or cancer worry.

"Our findings demonstrate that remote health care delivery methods have broad reach, are a successful and complementary option to traditional in-person models, and can increase the use of genetic testing," Rodriguez remarks. "It's critical that we continue to develop strategies of care delivery for historically marginalized racial and ethnic communities to ensure they have equal access to cancer genetics services."

The work is [published](#) in the journal *Gastroenterology*.

**More information:** Nicolette J. Rodriguez et al, A Randomized Trial of Two Remote Health Care Delivery Models on the Uptake of Genetic Testing and Impact on Patient-Reported Psychological Outcomes in Families With Pancreatic Cancer: The Genetic Education, Risk Assessment, and Testing (GENERATE) Study, *Gastroenterology* (2024). [DOI: 10.1053/j.gastro.2024.01.042](https://doi.org/10.1053/j.gastro.2024.01.042)

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