

Researchers Develop AI Tool to Predict Barrett's Esophagus Recurrence After Therapy

The tool is 90% accurate at predicting recurrence risk and timing, information that could help prevent a deadly form of esophageal cancer.

April 21, 2026 By University of Colorado Cancer Center and Julia Milzer

A new artificial intelligence (AI)-based tool shows promise for improving surveillance in patients treated with endoscopic eradication therapies for Barrett's esophagus (BE)-related dysplasia and early esophageal adenocarcinoma. BE is the only known condition that precedes esophageal adenocarcinoma – an aggressive cancer with high mortality rates.

Developed and validated by U.S. researchers, the AI model was over 90% accurate at predicting which patients would experience a recurrence of BE after endoscopic eradication therapy (EET) and detecting when it's likely to occur.

The findings were published [April 7] in [Clinical Gastroenterology and Hepatology](#).

“Early detection of Barrett's esophagus related dysplasia and associated esophageal adenocarcinoma can save lives. Identifying recurrence in the form of BE, BE-related dysplasia and BE-related esophageal adenocarcinoma earlier, especially in high-risk patients who have undergone endoscopic eradication therapy, creates opportunities for timely treatment before cancer develops or progresses,” said the study's senior author, [Sachin Wani](#), MD, executive director of the University of Colorado Anschutz Cancer Center's [Rady Esophageal and Gastric Center of Excellence](#).

EET is an effective treatment for BE-related dysplasia and early esophageal adenocarcinoma that eliminates abnormal Barrett's tissue and significantly reduces the risk of progression to esophageal cancer.

“The challenge is that recurrence of Barrett's esophagus can still occur even after endoscopic eradication therapy, and current surveillance strategies don't distinguish between patients at high versus low risk. Everyone is followed using the same schedule regardless of their risk,” said Wani.

Pinpointing Patients at Greatest Risk of Recurrence

Using artificial intelligence and data from more than 2,500 patients, Wani and a team of leading experts from across the country developed the machine-learning tool. To create it, they analyzed detailed clinical data from patients who had been treated with EET and followed over time to determine if, and when, BE and BE-related dysplasia or cancer returned. This analysis revealed that nearly three in 10 patients experienced recurrence after successful treatment, with the condition returning about two years after therapy on average.

The AI tool was then trained to look at many patient factors at once, such as age, body weight, disease severity and treatment details. It learned patterns that humans can't easily see, including how combinations of factors affect risk. They found recurrence was more likely in patients who had:

- A longer area of Barrett's tissue
- A higher body weight
- Older age
- Needed more treatment sessions to fully remove abnormal tissue
- More advanced cell changes at the time of diagnosis

The model was tested in two ways: by checking how well it worked on patients similar to those it was trained on and checking performance on different patient groups from other sources. The tool was accurate for both sets of patients.

This tool could help doctors personalize follow-up care after treatment, instead of using the same schedule for every patient. People at higher risk of the condition coming back could be monitored more closely, while those at lower risk might need fewer follow-up procedures. This approach could reduce unnecessary tests, lower stress for patients and make better use of healthcare resources.

"This work represents several years of effort and partnership across multiple institutions. It wouldn't have been possible without the collaboration of our colleagues who shared their data and expertise," said Wani.

Collaborators include experts at Johns Hopkins University, Mayo Clinic, UZ Leuven, University of North Carolina at Chapel Hill, Washington University School of Medicine, Cleveland Clinic London, Northwestern Feinberg School of Medicine, University College London, University of California Los Angeles, University of Kansas and Hirslanden Clinic Zurich.

The next step is to further validate the model using international datasets through collaborations in the Netherlands, the United Kingdom, Belgium and Switzerland. The goal is to validate the tool so it can be applied broadly and used as a reliable, universal aid in clinical care.

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<http://beta.docker.cancerhealth.com/article/researchers-develop-ai-tool-predict-barretts-esophagus-recurrence-therapy>