

How Artificial Intelligence Can Improve Colorectal Cancer Detection

As we look to the future of screening, technology may be a solution to improve CRC detection rates and decrease morbidity.

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The applications of artificial intelligence (AI) goes beyond social media: scientists have found that it can be used to help physicians identify adenomas during screening. In Singapore, scientists affiliated with the Lee Kong Chian School of Medicine and Sengkang General Hospital evaluated [the one year performance](#) of AI colonoscopy and its impact on colorectal cancer (CRC) screening.

Adenoma Detection Rate (ADR) is the ratio of the number of colonoscopies that detect an adenoma to the total number of colonoscopies performed. Adenoma Detected Per Colonoscopy (ADPC) is the average number of adenomas detected per colonoscopy performed. These measures were used to determine the effectiveness of this emerging tool. This is not a new concept, however. Computer-aided detection (CADe) has [previously been shown](#) to improve ADPC rate by 22%. More information regarding this previous study can be found [here](#).

AI Adds Value and Is Cost-Effective

Using a database of colonoscopy images, the GI Genius™ Intelligent Endoscopy Module is able to identify lesions that are potential polyps. The researchers recognize that there is a learning curve for providers to utilize the technology and there may be fatigue associated with using the technology for too long. Another risk involved is a longer procedural time due to the need for analyzing the results.

In order to determine if the benefits outweigh the costs, researchers used a prospective cohort study with CADe colonoscopies and traditional ones. They measured the polyp detection rate (PDR) which was the ratio of polyp-detected colonoscopies to the total number performed. Once these polyps were assessed in a lab via polypectomy, the ADR and ADPC rates were calculated.

Out of 843 CADe colonoscopies, the AI registered 1,392 hits with 71% of polypectomies being adenomatous. In the CADe group, the PDR was 45.6%, the ADR was 32.4%, and the ADPC was 2.08. Additionally, the mean procedural time for AI-aided colonoscopies and non-AI aided colonoscopies were not statistically significant, with the former taking an average of 19.9 minutes and the latter, 19.7 minutes.

Considering the cost of using AI assistance, the polypectomy rates increased revenue by more than \$ US100,000 over the course of one year of AI-usage. This covered the subscription cost of the technology with \$20,000 remaining. The study maintained that the AI-aided technology improved both ADR and PDR. Endoscopists also did not ignore the device prompts, indicating “adoption fatigue” was not an issue in this population.

Leveraging technology to improve CRC screenings ranges from [social media advocacy](#) to using AI in screening. As we look to the future of screening, technology may be a solution to improve CRC detection rates and decrease morbidity.

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