

Artificial Intelligence Assisted Colon Polyp Detection: Initial Experience by Gastroenterology Fellows



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INTRODUCTION

One-fourth of colorectal neoplasia are missed on screening colonoscopies. Polyp detection rate is an important quality indicator for colonoscopy performance. It varies widely among providers in both community and academic settings. Currently, professional societies recommend an adenoma detection rate of at least 20% for women and 30% for men. The aim of our study is to evaluate the use of artificial intelligence (AI) during colonoscopies performed by gastroenterology fellows to assist their detection of colon polyps.

METHODS

Patients undergoing outpatient colonoscopy in two specific rooms equipped with GI Genius (Medtronic, Minneapolis, MN) from February to May 2022 were eligible for investigation. Inclusion criteria were patient procedures done by 2nd and 3rd year fellows supervised by one of 4 faculty members. Demographic data, colonoscopy quality measures and number of polyps were recorded. An inquiry by the faculty was performed with a binary response of yes or no for each detected polyp during the procedure to assess if AI assisted in fellow polyp detection. The polyp detection rate by AI was calculated as - (number of procedures AI assisted in detecting polyps / total number of procedures) x 100. In addition, data on if a change in endoscopic billing code occurred or surveillance interval was obtained as a result of AI. Descriptive statistics were used to analyze results.

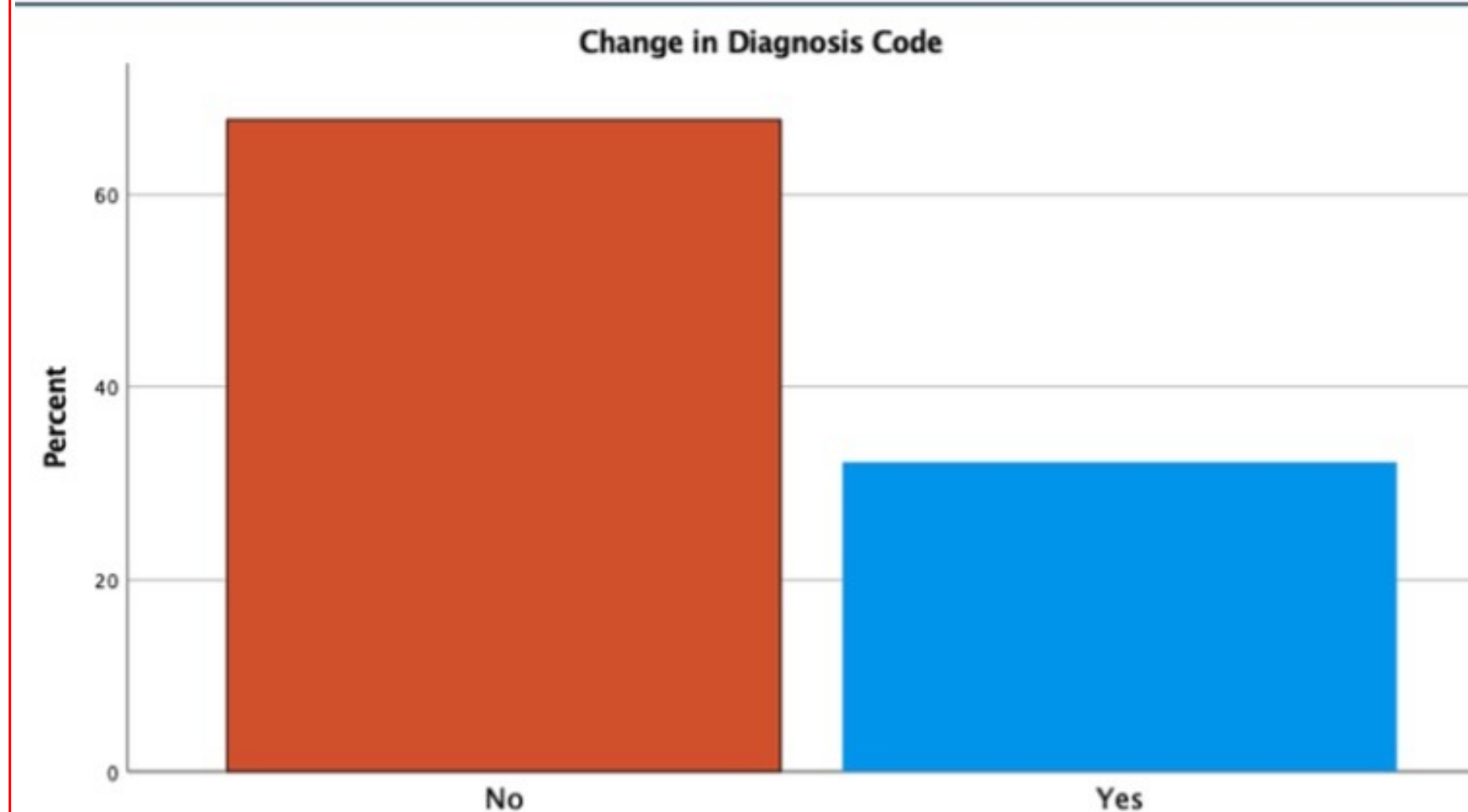
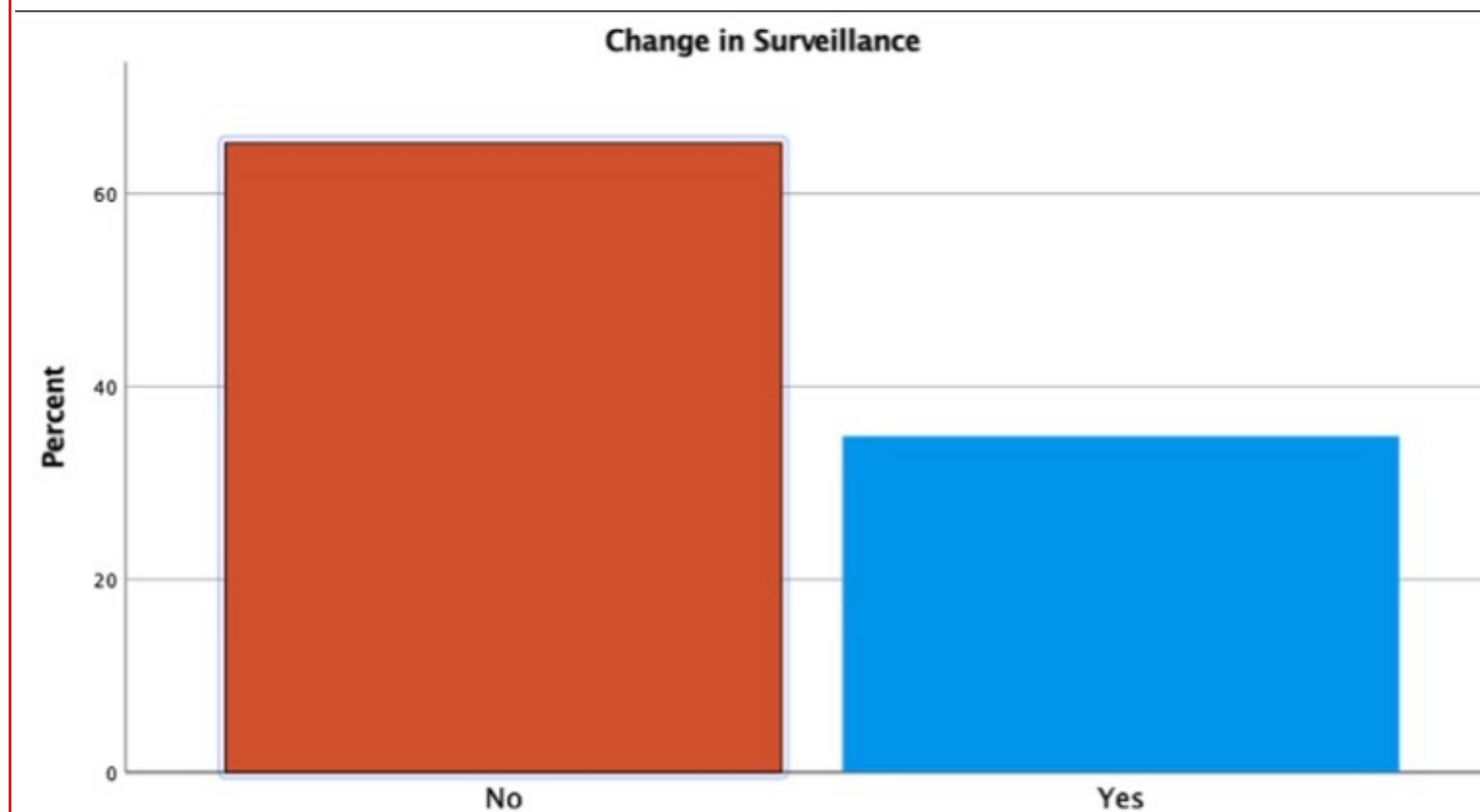


Image 1 – Graph on the top shows percent change in surveillance interval and the graph at the bottom shows percent change in diagnosis code.

RESULTS

A total of 115 patients met inclusion criteria and comprise the study group. Average age of the participants was 56.9 yrs. Females were 57% and males were 43%. African Americans enrolled in accounted for 45.2%, Caucasians 50.4%, Hispanic/Latino 2.6% and 1.8% Asians. The mean Boston Bowel Prep Score was 7.5. Mean withdrawal time was 14.4 minutes. The AI assisted polyp detection rate was 46%. Reduced surveillance interval in 34.8% and increased procedure revenue in 32.2% occurred in patients with fellow performed AI assisted colonoscopy.

DISCUSSION

The current investigation revealed that AI assisted colonoscopy resulted in an acceptable polyp detection rate, reduced post procedure surveillance intervals in those with AI detected lesions and increased overall revenue from trainee-performed procedures. AI improved quality of fellow colonoscopy exams by reducing missed lesions, allowing for correct patient stratification and maximal polyp/cancer reduction from the procedure. These preliminary results should be confirmed using larger cohorts of fellow procedures using AI during colonoscopy.