Colorectal cancer (CRC) is the third leading cancer in the United States with an estimated 132,700 new cases and 49,700 deaths in 2015. Well-performed screening colonoscopies prevent cancer by allowing visualization of the entire colon and removal of precancerous polyps (adenomas). Persons with high-risk polyps at screening are therefore advised to undergo periodic surveillance colonoscopy. Screening and surveillance colonoscopy guidelines were updated by the U.S. Multi-society Task Force (USMSTF) in 2006, which emphasized risk stratification by polyp features at screening colonoscopy.

This is a retrospective cohort study of patients with screening colonoscopy at an endoscopy center in South Carolina between September 2001 and February 2010, followed through February 2011. The aims of the study are to: (a) assess the impact of the 2006 USMSTF guidelines on CRC surveillance and re-screening timing, and, (b) identify the predictors of guideline-concordant surveillance colonoscopy recommendations, overuse or underuse.

We compared patients with screening colonoscopy in the pre- and post-2006 periods for appropriate use (surveillance interval as per guideline), overuse (premature relative to guideline) and underuse (delayed or not done). We classified patients by cancer risk, and comparisons were made using chi-square tests, Kaplan-Meier (KM) approach with log-rank test, and multiple regression modeling to identify factors associated with appropriate surveillance.
Of 16,897 study patients, 4,234 had adenomatous polyps (surveillance-eligible), of whom 2,195 (51.4%) had a surveillance colonoscopy, 91.8% with inappropriate surveillance timing. We observed underuse among ≤1-, and 3-year surveillance groups (p<0.001), and overuse among 5-year recommended surveillance (p<0.001). Among those without adenomas at initial colonoscopy, 14.3% (1,793 of 12,571 pre-period patients) had premature second colonoscopy after a mean of 4.65 years. In multivariate analysis, patients with advanced adenoma (OR: 2.12; 95%CI: 1.50-3.00), large adenoma (≥ 10 mm) (OR: 1.49; 95%CI: 1.01-2.19), and ≥2 advanced characteristics (OR: 1.94; 95%CI: 1.11-3.39) were associated with overuse. Delayed surveillance was more likely in patients with the largest adenoma found in the right colon (OR: 1.51; 95%CI: 1.13-2.02) and Medicaid beneficiaries (OR: 3.73; 95%CI: 1.30-10.70).

Minimizing overuse among low-risk patients will spare provider time for high-risk patients and reduce colorectal cancer incidence at no extra cost.