

Study shows benefit of higher quality screening colonoscopies

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An analysis that included information from more than 57,000 screening colonoscopies suggests that higher adenoma detection rates may be associated with up to 50 percent to 60 percent lower lifetime colorectal cancer incidence and death without higher overall costs, despite a higher number of colonoscopies and potential complications, according to a study in the June 16 issue of *JAMA*.

Screening colonoscopy reduces [colorectal cancer](#) death risk through detection and treatment of early cancerous or precancerous lesions (adenomas) but its effectiveness depends on examination quality, which is measured by adenoma detection rates (ADRs). This rate varies widely among physicians, with unknown consequences for the cost and benefits of screening programs, according to background information in the article.

Reinier G.S. Meester, M.Sc., of Erasmus MC University Medical Center, Rotterdam, the Netherlands, and colleagues estimated the lifetime benefits, complications, and costs of an initial colonoscopy screening program at different levels of adenoma detection. The researchers performed microsimulation modeling with data from a large, community-based health care system (Kaiser Permanente Northern California) on ADR variation and [cancer](#) risk among 57,588 patients examined by 136 physicians from 1998 through 2010. For this study, no screening was compared with screening initiation with colonoscopy according to ADR quintiles (divided into five groups). Adenoma detection rates, the proportion of a physician's screening colonoscopies

that detect at least 1 histologically confirmed adenoma, ranged from 7.4 percent to 53 percent, with the rates increasing from quintile 1 to quintile 5.

The model estimated that among unscreened patients the lifetime colorectal [cancer risk](#) was 34.2 per 1,000, the lifetime colorectal cancer mortality risk was 13.4 per 1,000. The modeled risks were inversely related to the level of adenoma detection. The simulated lifetime risk of colorectal cancer per 1,000 was 26.6 for patients of physicians in quintile 1 and was lower for subsequent quintiles; in quintile 5, the lifetime colorectal cancer risk was 12.5. The model estimated that lifetime incidence and mortality risks averaged 11 percent to 13 percent lower for every five-point higher ADR, which translates to overall differences of 53 percent to 60 percent between the lowest and highest quintiles.

Simulated risk of complications increased from six of 2,777 colonoscopies in quintile one to 8.9 complications of 3,376 colonoscopies in quintile 5. Estimated net screening costs were lower from quintile 1 (\$2.1 million) to quintile 5 (\$1.8 million) due to averted cancer treatment costs.

'By evaluating the costs for screening, surveillance, [screening](#)-associated complications and cancer care, our model suggested that ADR is not associated with higher overall costs,' the authors write.

'Future research is needed to assess why adenoma detection rates vary and whether increasing adenoma detection would be associated with improved patient outcomes.'

More information: *JAMA*, [DOI: 10.1001/jama.2015.6251](https://doi.org/10.1001/jama.2015.6251)

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