



[Effect of screening sigmoidoscopy and screening colonoscopy on colorectal cancer incidence and mortality: systematic review and meta-analysis of randomised controlled trials and observational studies.](#)

<https://arctichealth.org/en/permalink/ahliterature104177>

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Source: BMJ. 2014;348:g2467

Date: 2014

Language: English

Publication Type: Article

Keywords: Canada - epidemiology
Colonic Neoplasms - diagnosis - mortality
Colonoscopy - mortality
Early Detection of Cancer - mortality
Europe - epidemiology
Humans
Incidence
Observational Study as Topic
Randomized Controlled Trials as Topic
Rectal Neoplasms - diagnosis - mortality
Risk Reduction Behavior
Sigmoidoscopy - mortality
United States - epidemiology

Abstract:

To review, summarise, and compare the evidence for effectiveness of screening sigmoidoscopy and screening colonoscopy in the prevention of colorectal cancer occurrence and deaths.

Systematic review and meta-analysis of randomised controlled trials and observational studies.

PubMed, Embase, and Web of Science. Two investigators independently extracted characteristics and results of identified studies and performed standardised quality ratings.

Randomised controlled trials and observational studies in English on the impact of screening sigmoidoscopy and screening colonoscopy on colorectal cancer incidence and mortality in the general population at average risk.

For screening sigmoidoscopy, four randomised controlled trials and 10 observational studies were identified that consistently found a major reduction in distal but not proximal colorectal cancer incidence and mortality.

Summary estimates of reduction in distal colorectal cancer incidence and mortality were 31% (95% confidence intervals 26% to 37%) and 46% (33% to 57%) in intention to screen analysis, 42% (29% to 53%) and 61% (27% to 79%) in per protocol analysis of randomised controlled trials, and 64% (50% to 74%) and 66% (38% to 81%) in observational studies. For screening colonoscopy, evidence was restricted to six observational studies, the results of which suggest tentatively an even stronger reduction in distal colorectal cancer incidence and mortality, along with a significant reduction in mortality from cancer of the proximal colon. Indirect comparisons of results of observational studies on screening sigmoidoscopy and colonoscopy suggest a 40% to 60% lower risk of incident colorectal cancer and death from colorectal cancer after screening colonoscopy even though this incremental risk reduction was statistically significant for deaths from cancer of the proximal colon only.

Compelling and consistent evidence from randomised controlled trials and observational studies suggests that screening sigmoidoscopy and screening colonoscopy prevent most deaths from distal colorectal cancer.

Observational studies suggest that colonoscopy compared with flexible sigmoidoscopy decreases mortality from cancer of the proximal colon. This added value should be examined in further research and weighed against the higher costs, discomfort, complication rates, capacities needed, and possible differences in compliance.

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PubMed ID: 24922745 [View in PubMed](#) 