CRD summary
This review concluded that there was no evidence that use of narrow-band imaging improved polyp or adenoma detection rates. However, the authors stated that a small but possibly clinically significant benefit could not be ruled out. These cautious conclusions reflect the data presented and the limitations of the review.

Authors’ objectives
To assess whether narrow-band imaging improves adenoma detection in patients undergoing screening or surveillance, compared to conventional colonoscopy.

Searching
MEDLINE, EMBASE and The Cochrane Library were searched without language restrictions; search terms, but not dates, were reported. Abstracts from Digestive Disease Week and United European Gastroenterology Week were screened for unpublished presentations. Bibliographies of included studies were screened for additional articles. Studies published as abstracts only were excluded.

Study selection
Randomised controlled trials that compared narrow-band imaging with conventional white light colonoscopy for the detection of adenoma were eligible for inclusion.

Studies of patients who underwent surveillance for inflammatory bowel disease or known polyposis syndromes (familial adenomatous polyposis or hereditary nonpolyposis colorectal cancer) were excluded.

The mean age of study participants ranged from 59.4 to 64.4 years. From 47% to 96% of participants were men. Indications for colonoscopy included “standard indications” (occult gastrointestinal bleed, pain and diarrhoea), screening, surveillance and other (not defined). Primary outcomes were polyp detection rate, adenoma detection rate, polyps per patient and adenomas per patient.

Studies were independently assessed for inclusion by three reviewers.

Assessment of study quality
The methodological quality of included studies was assessed using criteria based on the STARD reporting guideline and an overall score was generated. Quality scoring was also performed using the QUADAS tool (met criteria scored 1, criteria not met scored -1 and unclear criteria scored zero).

The authors did not state how many reviewers performed the quality assessment.

Data extraction
Data were extracted on the number of polyps and adenomas detected and the number of participants in the treatment and control arms for each included study. These data were used to calculate the relative risk (RR) of adenoma detection and the mean difference in adenomas detected per patient, with 95% confidence intervals (CIs).

Three reviewers independently extracted data and any disagreements were resolved through discussion.

Methods of synthesis
Pooled estimates of relative risk, with 95% confidence intervals, were calculated for dichotomous outcomes and weighted mean differences were calculated for continuous outcomes, each with 95% CIs, using a Mantel-Haenszel fixed-effect model. Between-study heterogeneity was assessed using X² and I². Where there was evidence of significant between-study heterogeneity (I²>50%), pooled estimates were also calculated using a DerSimonian and Laird random-effects model.
Results of the review
Seven studies (2,936 participants) were included in the review. No results of methodological quality assessment were reported.

There were 1,618 adenomas identified in 2,936 participants. There were no statistically significant differences in adenoma detection rate (RR 1.06, 95% CI 0.97 to 1.16) or number of adenomas detected per patient between narrow-band imaging and conventional colonoscopy.

Four studies reported total polyp detection rate; 1,396 polyps were detected in 2,171 participants. There were no statistically significant differences in polyp detection rate (RR 1.22, 95% CI 0.85 to 1.76) or number of polyps detected per patient between narrow-band imaging and conventional colonoscopy.

There was substantial between-study heterogeneity in all estimates except adenoma detection rate.

Authors’ conclusions
There was no evidence that use of narrow-band imaging improved polyp or adenoma detection rates. A small but possibly clinically significant benefit could not be ruled out.

CRD commentary
The review specified a clear objective defined by appropriate inclusion criteria. Various sources were searched for relevant studies. There were no language restrictions. Exclusion of studies that were only published in abstract form meant that publication bias could not be excluded. Study selection and data extraction processes included measures to minimise error and bias. The authors reported that they assessed the methodological quality of included studies but the quality assessment tools specified were for diagnostic accuracy studies rather than for randomised controlled trials. Results of quality assessment were not reported and were unlikely to have been informative. As acknowledged by the authors, there was substantial clinical and statistical heterogeneity between the included studies and these raised questions about the validity of pooled estimates.

The authors’ cautious conclusions reflect the data presented and the limitations of their review.

Implications of the review for practice and research
The authors did not specify any recommendations for clinical practice or future research.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.