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Title **What Are the Clinical Outcome and Cost Effectiveness of Endoscopy Undertaken by Nurses When Compared with Doctors? A Multi-Institution Nurse Endoscopy Trial (MINuET)**

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Aim

To compare the clinical outcome and cost effectiveness of doctors and nurses undertaking upper and lower gastrointestinal endoscopy by measuring the: acceptability to patients; quality of the process; outcome for, and value to patients; resources consumed by the NHS and by patients; and the relative cost effectiveness of nurses and doctors.

Conclusions and results

The two groups were well matched at baseline for administrative, demographic, and clinical characteristics. Significantly more patients were changed from a planned endoscopy by a doctor to a nurse than vice versa, mainly for staffing reasons. No significant difference was found between the two groups in the primary or secondary outcome measures at 1 day, 1 month and 1-year post procedure, with the exception of patient satisfaction. One day after the procedure, patients were significantly more satisfied with nurses. Nurses were more thorough in the examination of the esophagus and stomach, but no different from doctors in the examination of the duodenum and colon. There was no significant difference in costs to the NHS or patients, although there was a trend toward doctors costing slightly more. The quality of life measures also showed a slight improvement in scores in the doctor group. Although this does not reach traditional levels of statistical significance, the economic evaluation, taking account of uncertainty around the results (both cost and quality of life), suggests that doctors are likely to be more cost effective than nurses.

Recommendations

Nurses can undertake diagnostic endoscopy safely and effectively. However, doctors are more likely to be cost effective. If decision makers nevertheless choose to continue the current trend toward diagnostic endoscopy undertaken by nurses rather than doctors, this has implications for human resources, training, and governance. We estimate that 2 nurse endoscopists will be needed per endoscopy unit.

Methods

The study was a pragmatic randomized controlled trial. Zelen's randomization before consent was used to minimize any distortion of existing practice in the participating sites. Primary outcome measure was the Gastrointestinal Symptom Rating Score (GSRQ). Secondary outcome measures were anxiety scores (STAI), SF36, Euroqol (EQ5D), and Gastrointestinal Endoscopy Satisfaction Questionnaire (GESQ). An economic evaluation was conducted alongside the trial, assessing the relative cost effectiveness of nurses and doctors, and estimating the probability that nurse endoscopy is cost effective.

Further research/reviews required

There is a need to evaluate the clinical outcome and cost effectiveness of nurses undertaking the more complicated and expensive procedures of colonoscopy and therapeutic endoscopy, and diagnostic endoscopy in other settings. The cost effectiveness of nurses may change as they become more experienced, and this will need to be re-evaluated in the future. There is also a need to assess the implications of increasing the number of nurse endoscopists on waiting times for patients, and the career implications and opportunities for these professionals.

Finally, the clinical outcome and cost effectiveness of diagnostic endoscopy for all current indications need to be evaluated.

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