

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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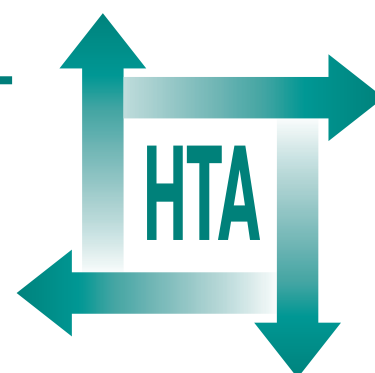
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Executive summary

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Executive summary

Background

Nurses are increasingly undertaking both upper and lower gastrointestinal endoscopy. Although uncontrolled studies suggest that nurse endoscopists are competent, and appreciated by patients, no pragmatic randomised trial of this change in role has yet been reported. If the role of nurses in endoscopy is to be developed, the implications for the workforce also need to be analysed.

Objectives

The objectives were to compare the clinical outcome and cost-effectiveness of doctors and nurses undertaking upper and lower gastrointestinal endoscopy by measuring:

- acceptability to patients
- quality of the process
- outcome for, and value to, patients
- resources consumed by the NHS and by patients
- the relative cost-effectiveness of nurses and doctors.

If the results confirmed the acceptability of endoscopy by nurses, a further objective was to develop an economic model to predict the effect of an increase in these specialists on the labour market and also the training implications.

Design

The study was a pragmatic randomised controlled trial. Zelen's randomisation before consent was used to minimise distortion of existing practice in the participating sites. An economic evaluation was conducted alongside the trial, assessing the relative cost-effectiveness of nurses and doctors.

Setting

The study was undertaken in 23 hospitals in England, Scotland and Wales. In six hospitals nurses undertook both upper and lower

gastrointestinal endoscopy, yielding a total of 29 'centres'. The study was coordinated and managed from Swansea. Randomisation, data management and analysis were undertaken at York. Analysis was by intention-to-scope.

Participants

Sixty-seven doctors and 30 nurses took part in the study. Of 4964 potentially eligible patients, 4128 (83%) were randomised. Of these, 1888 (45%) were recruited to the study from 29 July 2002 to 30 June 2003.

Interventions

The procedures under study were diagnostic upper gastrointestinal endoscopy and flexible sigmoidoscopy undertaken by nurses or doctors, with or without sedation, using the preparation, techniques and protocols of participating hospitals.

Main outcome measures

The primary outcome measure was the Gastrointestinal Symptom Rating Questionnaire (GSRQ).

Secondary outcome measures were the EuroQol (EQ5D), Gastrointestinal Endoscopy Satisfaction Questionnaire (GESQ), the State-Trait Anxiety Inventory (STAI), cost-effectiveness, immediate and delayed complications, quality of examination by blinded assessment of endoscopic video recordings, quality of procedure reports, patients' preferences for operator 1 year after endoscopy, and new diagnoses at 1 year.

Results

The two groups were well matched at baseline for demographic and clinical characteristics. Significantly more patients changed from a planned endoscopy by a doctor to a nurse than vice versa, mainly for staffing reasons. There was

no significant difference between the two groups in the primary or secondary outcome measures at 1 day, 1 month or 1 year after endoscopy, with the exception of patient satisfaction at 1 day, which favoured nurses. Nurses were significantly more thorough in the examination of stomach and oesophagus, but no different from doctors in the examination of duodenum and colon. There was no significant difference in costs to the NHS or patients, although doctors cost slightly more. Although quality of life measures showed improvement in some scores in the doctor group, this did not reach traditional levels of statistical significance. Even so, the economic evaluation, taking account of uncertainty in both costs and quality of life, suggests that endoscopy by doctors has an 87% chance of being more cost-effective than endoscopy by nurses.

Conclusions

There is no statistically significant difference between doctors and nurses in their clinical effectiveness in diagnostic endoscopy. However, nurses are significantly more thorough in the examination of oesophagus and stomach, and patients are significantly more satisfied after endoscopy by a nurse. Endoscopy by doctors is associated with better outcome at 1 year at higher cost, but overall is likely to be cost-effective.

Implications for healthcare

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 towards diagnostic endoscopy undertaken by nurses rather than doctors, this has implications for human resources, training and governance. We estimate that two nurse endoscopists will be needed per endoscopy unit.

Recommendations for research

The following are indicated for areas of future, further research:

- evaluation of the clinical outcome and cost-effectiveness of nurses undertaking full colonoscopy, therapeutic endoscopy and oesophagogastroduodenoscopy and flexible sigmoidoscopy in other settings
- monitoring the cost-effectiveness of nurse endoscopists as they become more experienced
- assessment of the effect of increasing the number of nurse endoscopists on waiting times for patients
- evaluation of the clinical outcome and cost-effectiveness of diagnostic endoscopy for all current indications
- assessment of the career implications and opportunities for nurses who become trained endoscopists.

Publication

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NHS R&D HTA Programme

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The research reported in this monograph was commissioned by the HTA Programme as project number 97/37/09. The contractual start date was in September 2001. The draft report began editorial review in May 2005 and was accepted for publication in February 2006. As the funder, by devising a commissioning brief, the HTA Programme specified the research question and study design. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the referees for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

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