Cost effectiveness of nurse delivered endoscopy: findings from randomised multi-institution nurse endoscopy trial (MINuET)

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study examined the cost-effectiveness of nurses and doctors in performing upper gastrointestinal endoscopy and flexible sigmoidoscopy. The authors concluded that, although slightly more expensive, endoscopies carried out by doctors were more cost-effective than those performed by nurses, but there was much uncertainty underlying the findings. The study was well conducted and the authors’ conclusions are likely to be valid.

Type of economic evaluation
Cost-utility analysis

Study objective
The objective was to compare the cost-effectiveness of nurses versus doctors in performing upper gastrointestinal endoscopy and flexible sigmoidoscopy.

Interventions
The analysis compared procedures delivered by doctors with those delivered by nurses. A subgroup analysis evaluated the cost-effectiveness of doctors compared with nurses for flexible sigmoidoscopy and oesophagogastroduodenoscopy.

Location/setting
UK/primary care.

Methods
Analytical approach:
This economic evaluation was based on a single study with a one-year time horizon. The authors stated that the study was conducted from the perspective of the UK National Health Service (NHS).

Effectiveness data:
The clinical data came from a published pragmatic, randomised controlled trial (RCT), which was carried out in 23 hospitals in England, Scotland, and Wales. The trial enrolled a total of 1,888 patients, with 953 in the doctor group (67 doctors) and 928 in the nurse group (30 nurses). The length of follow-up was one year. The key clinical endpoint was the impact of the intervention on usual activities or self care and quality of life.

Monetary benefit and utility valuations:
The utility valuations were elicited using the European Quality of life (EQ-5D) instrument in the sample of patients enrolled in the RCT. These values were measured at baseline, and one day, one month, and one year of follow-up. The follow-up values were adjusted by baseline estimates using sex and age as covariates.

Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure.

Cost data:
The economic items were those associated with the endoscopy procedure (duration of endoscopy, staffing, and consumables), in-patient stay, out-patient appointments, general practitioner (GP) visits, drugs, travel to and from appointments, and private medical care. The resource use data were collected in the RCT using time sheets, GP and
patient questionnaires, and hospital or primary care medical records. The unit costs were derived from UK official sources such as the Personal Social Services Research Unit, UK NHS reference costs, the British National Formulary, and the Automobile Association. All costs were in UK pounds sterling (£) and were in 2002 to 2003 prices.

Analysis of uncertainty:
The issue of uncertainty was investigated by means of the monetary benefit approach and the use of cost-effectiveness acceptability curves. The base-case analysis was also replicated excluding missing data rather than imputing them.

Results
The doctor group gained 0.0153 QALYs (95% confidence interval, CI: -0.008 to 0.039) in comparison with the nurse group, adjusted by baseline differences. The lower QALYs associated with nurses was probably due to a higher number of additional tests and investigations in this treatment group, which reduced the quality of life.

Total costs were slightly higher in the doctor group by £56 (95% CI: £100 to £213). The incremental cost per QALY gained in the doctor group over the nurse group was £3,660.

The analysis of uncertainty suggested that, at a threshold willingness to pay of £30,000 per QALY, the probability of nurses being cost-effective was only 13%, but there was much uncertainty surrounding the results.

The incremental cost per QALY gained with doctors was £2,600 for sigmoidoscopy and £7,850 for oesophagastroduodenoscopy.

Authors’ conclusions
The authors concluded that, although slightly more expensive, endoscopies carried out by doctors were more cost-effective than those performed by nurses, but there was much uncertainty underlying these findings.

CRD commentary
Interventions:
The selection of the comparators was appropriate in that doctors and nurses were the health professionals available to perform endoscopies.

Effectiveness/benefits:
The clinical evidence came from a RCT, which is a valid source of data given the strengths of its design. The authors provided only a few details of this multi-centre trial because the primary report was published separately. They described the methods used for imputing missing data and these appear to have been appropriate. Also a sensitivity analysis was performed, including only those who completed treatment. The utility valuation was based on a validated instrument, but the authors stated that the EQ-5D might not have been sensitive enough to capture the differences in health-related quality of life for this patient group. QALYs were an appropriate benefit measure given the impact of the interventions on patients’ quality of life.

Costs:
The economic analysis was well reported. The authors provided a detailed breakdown of the cost items together with their sources and the price year. The unit costs and resource quantities were presented separately and missing data were imputed using valid methods. Thus, the economic study was carried out in a transparent fashion, which will allow the analysis to be replicated in other settings.

Analysis and results:
The study findings were clearly presented. The analytic approach used to combine the costs and benefits and to address the issue of uncertainty was appropriate given the objective. The authors acknowledged some potential limitations of their study such as the short time horizon and the potential increase in experience of nurses over time.

Concluding remarks:
The study was well conducted and the authors’ conclusions are likely to be valid.
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