Cost-saving analysis of screening colonoscopy in Germany
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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
The study evaluated the costs of screening colonoscopy and surveillance, and the potential savings from screening arising from the prevention of colorectal cancer, using data from an online registry of 109,989 screening colonoscopies. The authors concluded that screening colonoscopy may result in net savings from colorectal cancer prevention which would compensate for the costs of screening and surveillance. On the whole, the study was relatively well reported and the authors’ conclusion seems appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study evaluated the costs of screening colonoscopy and surveillance after polypectomy, and the potential savings from screening by the prevention of colorectal cancer, using data from an online registry of 109,989 screening colonoscopies with screenees having an average age of 65 years.

Interventions
The study evaluated screening and surveillance colonoscopy, with the latter scheduled according to national German guidelines. This was compared with no screening.

Location/setting
Germany/secondary care.

Methods
Analytical approach:
A model was used to facilitate the synthesis of the costs and effectiveness data with much of the demographic and clinical data coming from a large scale online registry of screening colonoscopies. The time horizon of the study was 10 years. The authors stated that the study perspective was that of a third-party payer.

Effectiveness data:
The evidence came from a combination of data from the online registry and published studies. The authors did not report any search methods or inclusion criteria. The main clinical parameter was the number of cases of colorectal cancer prevented.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The authors considered the measure of benefit to be the cost-savings. However, the cost-savings were based on the number of colorectal cancers avoided.

Cost data:
The costs included were for colonoscopy, adverse events, and diagnosis and treatment. Colonoscopy costs were based on payments of insurance companies according to the contract with the association of physicians. Cost for adverse events and for the diagnosis and treatment of colorectal cancer were obtained from published studies. All costs were reported in euros (EUR), although the price year was not reported. Discounting was performed and details were
Analysis of uncertainty:
A sensitivity analysis was performed on some of the key model variables. The results of the sensitivity analysis were shown as upper and lower bounds around the base-case net cost.

Results
The 109,989 screening colonoscopies would result in 2,816 colorectal cancers prevented, giving a discounted health benefit of 2,535 cases prevented.

The reduction in colorectal cancer would result in a saving of EUR 490 per screenee because of the reduction in treatment costs.

The total cost of screening and surveillance (including complications) was EUR 274 per screenee.

The net cost of screening and surveillance colonoscopy taking into account the savings from reduced treatment costs was -EUR 210 per screenee.

Varying the parameters used in the model resulted in net savings per screenee from EUR 121 to EUR 623. However, there was no change to the overall conclusion that the costs of screening colonoscopy were outweighed by the savings from reduced treatment costs.

Authors’ conclusions
The authors concluded that screening colonoscopy may result in net savings from colorectal cancer prevention which would compensate for the costs of screening and surveillance.

CRD commentary
Interventions:
The interventions were poorly reported with few details of screening colonoscopy being given. The authors intentionally omitted relevant alternatives, but you should consider these in order to obtain the relative value of colonoscopy screening.

Effectiveness/benefits:
The effectiveness data were derived from an online registry of screening colonoscopies in Germany and from the published literature. The methods used to review the literature were not reported, which makes it impossible to decide if the best available evidence was used. Overall, the effectiveness parameters included in the model were well reported. The outcome used (i.e. number of cases of colorectal cancer prevented) was appropriate.

Costs:
The study perspective was reported clearly and it would appear that all the relevant costs were considered. The costs included those associated with screening colonoscopy and those averted due to the reduction in cases of colorectal cancer. Average or total costs were provided rather than unit cost and quantities. A sensitivity analysis was performed on the costs of colorectal cancer treatment but not on the costs of screening colonoscopy. Discounting was appropriately performed.

Analysis and results:
No synthesis of the effectiveness and cost data was performed. Instead, the costs associated with screening were compared with the costs offset by the reduction in treatment of colorectal cancer. In effect, a cost-consequences analysis was performed. The sensitivity analysis showed the results to be robust to changes in the model parameters, although a more extensive type of sensitivity analysis could have been undertaken.

Concluding remarks:
On the whole, the study was relatively well reported and the authors' conclusion seems appropriate.
Funding
None stated.

Bibliographic details

PubMedID
17874356

DOI

Indexing Status
Subject indexing assigned by NLM

MeSH
Colonoscopy /economics /statistics & numerical data; Colorectal Neoplasms /economics /epidemiology /prevention & control; Cost Savings /economics /statistics & numerical data; Germany /epidemiology; Health Care Costs /statistics & numerical data; Humans; Mass Screening /economics /statistics & numerical data; Registries

AccessionNumber
22007002350

Date bibliographic record published
01/09/2008

Date abstract record published
30/09/2008