Risk-stratified intensive follow up for treated colorectal cancer: realistic and cost saving?

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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 objective was to calculate the additional cost implications of intensive follow-up after colorectal cancer resection. The authors concluded that intensive follow-up detected considerably more resectable recurrences but at a considerable cost, making it unclear if such follow-up would be achievable by the NHS. Although the results were reported in detail many aspects of the methods used were not adequately reported. However, given the scope of the analysis, the authors’ conclusions appear to be appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aims were to calculate the resource and cost implications of intensive follow-up after colorectal cancer (CRC) resection, to examine the possibility of following-up only those at highest risk of CRC recurrence, and to investigate the impact that population screening might have on future costs and outcomes.

Interventions
The authors compared a standard follow-up regimen with an intensive follow-up regimen. The standard follow-up regimen was based on the protocol set in the British Society of Gastroenterology guidelines. The intensive follow-up regimen was based on the protocol from the most intensive follow-up of the Follow-up After Colorectal Surgery (FACS) trial (FACS trial investigators. 2007, see 'Other Publications of Related Interest' below for bibliographic details), which was still recruiting patients when the present paper was published.

Location/setting
UK/outpatient secondary care.

Methods
Analytical approach:
This analysis was based on a decision analytic model. The authors provided no details on the structure of the model. The time horizon of the study was five years from the day of discharge following CRC resection. The authors reported that the perspective adopted was that of the hospital.

Effectiveness data:
The effectiveness data were derived from a variety of sources including national statistics, cancer registries, published studies, and the preliminary results of the FACS trial. The authors did not provide details of any review of the literature, nor of how relevant studies were identified. The main clinical effectiveness estimate was the number of detected resectable recurrences for both follow-up regimens. These data were derived from preliminary results of the FACS trial.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The measure of benefit was the number of additional resectable lesions detected by intensive follow-up in 2003 and 2016 for a single cohort of patients diagnosed and treated for CRC in England and Wales.
Cost data:
The direct costs to the hospital in 2003 and 2016 were included in the analysis. These costs were the surgical cost of treating resectable recurrences, the cost of providing hospital-based CRC follow-up appointments, and the cost of radiological interventions. The costs of primary surgery, its complications, further elective operations to re-establish bowel continuity, adjuvant chemo-radiotherapy, and the costs to primary care were not included. The resource use data were derived mainly from the preliminary results and protocol of the FACS trial. The unit costs were primarily derived from the National Health Service (NHS) reference costs. The price year was 2005 and, as costs were incurred over a five-year period, they were discounted at an annual rate of 3.5%. All costs were reported in UK pounds sterling (£).

Analysis of uncertainty:
A series of one-way sensitivity analyses was performed by varying the appointment costs, investigation costs, operative costs, CRC incidence, discount rate, and recruitment rates for follow-up.

Results
After five years, for the 2003 cohort, with standard follow-up, 9,246 patients would still be alive with 5,591 recurrences detected, 559 of which were resectable. With intensive follow-up, 10,118 patients would still be alive, with 5,649 recurrences, 1,412 of which were resectable. The number of additional resectable lesions detected by intensive follow-up was 853.

The total costs of the follow-up programme for the 2003 cohort in England and Wales were £53.2 million for the standard regimen and £68.6 million for the intensive regimen.

The costs and benefits were combined using an incremental cost-effectiveness ratio (ICER, i.e. the additional costs per additional resectable lesion detected by intensive follow-up). For those patients with Dukes A to C cancers, the ICER of intensive follow-up was £18,077 for the 2003 cohort and between £18,111 and £36,255 for the 2016 cohort. For those patients with Dukes B to C cancers, the ICER of intensive follow-up was £15,956 for the 2003 cohort and between £15,988 and £23,722 for the 2016 cohort.

The one-way sensitivity analyses showed that the results were particularly sensitive to a rise in the cost of follow-up appointments, investigation costs, and lowering of the recurrence rate.

Authors’ conclusions
The authors concluded that intensive follow-up detected more resectable recurrences but at a considerable cost, making it unclear if such follow-up would be achievable by the NHS.

CRD commentary
Interventions:
Although the authors did not report in detail what each screening intervention involved, references were provided describing these interventions in more detail. Furthermore, a justification was given for using “standard” follow-up as the comparator, which was that it was the protocol recommended by the British Society of Gastroenterology.

Effectiveness/benefits:
The effectiveness and outcome data were derived from numerous sources including preliminary results from the FACS trial. However, the authors did not provide any details of the methods used to identify data, especially those from published studies. Also, the authors used a relatively narrow measure of benefit, which was the number of recurrent resectable cancers identified. This makes comparisons with the benefits of interventions for other diseases difficult.

Costs:
The costs appeared to reflect the perspective stated by the authors. The costs of primary surgery and its related consequences were not included in the analysis as these costs did not differ between the two patient groups. The resource use data and unit costs were well reported, and both costs and quantities were reported separately. The discount rate, time horizon, and unit cost and resource use sources were well reported.

Analysis and results:
The authors provided no details of the model structure used to estimate costs and benefits. The impact of uncertainty in the model's results was evaluated using a series of one-way sensitivity analyses. Although these go some way towards capturing uncertainty, the use of probabilistic sensitivity analyses would have been a more thorough way of evaluating overall uncertainty. Although the results were clearly reported, only brief details of the methodology, such as the model structure and identification of effectiveness data, were provided. The authors did not report any limitations to their study.

Concluding remarks:
Although the results were reported in detail, many aspects of the methods used were not adequately reported. However, given the scope of the analysis, the authors' conclusions appear to be appropriate.

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Other publications of related interest


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