Cost effectiveness of a test to detect metastases for endometrial cancer
Havrilesky LJ, Maxwell GL, Chan JK, Myers ER

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 estimate the cost-effectiveness of a hypothetical test to screen for lymph node metastases in women with newly diagnosed endometrial cancer. The authors concluded that a diagnostic test to detect nodal metastasis for endometrial cancer could be cost-effective compared with usual care. Because the methods were not reported in detail, it is not clear if the authors' conclusions are appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to estimate the cost-effectiveness of a hypothetical test to screen for lymph node metastases in women with newly diagnosed, apparent early endometrial cancer.

Interventions
The screening interventions were usual care, where the probability of undergoing full surgical staging was 29%; non-invasive diagnostic testing for metastasis, where patients with abnormal results underwent full surgical staging; and 100% referral, where all patients received full surgical staging.

Location/setting
USA/secondary in-patient care.

Methods
Analytical approach:
A Markov state-transition model was used to compare the interventions. The time horizon was five years and the authors reported that a societal perspective was adopted.

Effectiveness data:
The clinical and effectiveness estimates were derived from a variety of sources including cancer survival datasets, published studies, and authors' assumptions. The main clinical estimates were the sensitivity and specificity of the tests in the detection of retroperitoneal node metastasis. These were derived from authors' assumptions. Survival data were from the Surveillance, Epidemiology and End Results (SEER) database.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
Life-years saved were the measure of benefit and these were not discounted.

Cost data:
The direct costs were those of: out-patient visits; in-patient stays; anaesthesia; laboratory tests; pathology tests; chemotherapy; radiotherapy; and salvage chemotherapy. All costs were derived from Medicare reimbursement data. The resource use data, such as the proportion of patients receiving therapy, were assumed by the authors, based on published data. The price year was 2007 and all costs were reported in US dollars ($). Future costs were not discounted.

Analysis of uncertainty:
A series of one-way sensitivity analyses was performed by varying: the base-case diagnostic test characteristics, the cost of diagnostic testing, and the cost of treatment.

**Results**

Compared with usual care, diagnostic testing increased the life expectancy by 0.94 years or 34 days. Compared with diagnostic testing, 100% referral increased the life expectancy by 0.015 years or 5.5 days. The average cost per patient receiving usual care was $21,926, compared with $23,685 for diagnostic testing and $24,228 for 100% referral.

Compared with usual care, diagnostic testing was associated with an additional cost of $18,785 per life-year saved. Compared with diagnostic testing, 100% referral was associated with an incremental cost per life-year saved of $35,358.

The sensitivity analysis showed that these results were sensitive to variation in the test characteristics and the cost of diagnostic testing. Testing remained cost-effective unless the usual rate of referral to an oncologist for full staging was over 90%.

**Authors' conclusions**

The authors concluded that a diagnostic test to detect nodal metastasis for endometrial cancer had the potential to be cost-effective compared with usual care.

**CRD commentary**

**Interventions:**
The interventions were reported clearly and in detail and the usual practice was analysed.

**Effectiveness/benefits:**
The effectiveness data were derived from published literature, authors' assumptions, and a patient cohort database. The authors did not report how these sources of evidence were identified, and it is unclear if all the relevant evidence was considered. The main estimates for the sensitivity and specificity of the hypothetical test were assumed by the authors and no further details were given. The benefits could be incurred over a five-year time horizon, but the authors reported that no discounting was undertaken.

**Costs:**
A societal perspective was adopted, but only Medicare costs were included. From a Medicare perspective, all the relevant categories of costs appear to have been included. The sources from which these costs and resource quantities were derived were adequately reported. These costs could be incurred over a five-year period, but they were not discounted.

**Analysis and results:**
All the evidence on costs and outcomes was synthesised, using a Markov state-transition model. Appropriate details of this model were reported, but only part of it was presented in a diagram. The impact of uncertainty on the results was tested in a series of one-way sensitivity analyses. These went some way towards exploring the impact of uncertainty, but a probabilistic sensitivity analysis could have assessed the overall model uncertainty. The authors reported that the main limitation of their analysis was the inherent uncertainty in the performance characteristics of a theoretical diagnostic test.

**Concluding remarks:**
Because the methods were not reported in detail, especially the derivation of the effectiveness data, and there was uncertainty over the test performance, it is not clear if the authors’ conclusions were appropriate.

**Funding**
Not stated.

**Bibliographic details**

PubMedID
19100608

DOI
10.1016/j.ygyno.2008.11.017

Original Paper URL
http://dx.doi.org/10.1016/j.ygyno.2008.11.017

Indexing Status
Subject indexing assigned by NLM

MeSH
Cost-Benefit Analysis; Decision Support Techniques; Diagnostic Techniques, Obstetrical and Gynecological /economics; Endometrial Neoplasms /economics /pathology /surgery; Female; Health Care Costs; Humans; Lymphatic Metastasis; Markov Chains; Neoplasm Staging /economics /methods; Sensitivity and Specificity

AccessionNumber
22009101097

Date bibliographic record published
09/09/2009

Date abstract record published
13/10/2010