Use of alternative techniques of hysterectomy in Ohio, 1988-1994
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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.

Health technology
Laparoscopically assisted vaginal hysterectomy in patients undergoing hysterectomy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients undergoing hysterectomy.

Setting
Hospital. The economic study was conducted in Ohio, USA.

Dates to which data relate
Effectiveness, resource use, and cost data were collected between January 1, 1988 and 31 December, 1994. The fiscal year was 1994.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
Costing was retrospectively undertaken on the same patient sample as that used in the effectiveness analysis.

Study sample
It was not reported whether power calculations were used to determine the sample size. The study data were obtained from a computerized database of inpatients maintained by the Ohio Hospital Association which contains information on 96% of hospital discharges in the state. The database consisted of 179,307 patients undergoing hysterectomy. 133,501 patients, average (SD) age of 45 (12) years, underwent abdominal hysterectomies (74.5%), 37,827, average (SD) age of 48 (15) years, underwent vaginal hysterectomies (21.1%) and 7,979, average (SD) age of 42 (10) years, underwent vaginal hysterectomies with laparoscopic assistance (4.4%). ICD-9-CM classification was used. A total of 180 hospitals participated in the study and 16 did not.

Study design
This was a retrospective cohort study, carried out in a state covering 180 hospitals. The duration of the follow up was until discharge. Loss to follow up was 4%.

**Analysis of effectiveness**
The principle (intention to treat or treatment completers only) used in the analysis of effectiveness was not explicitly specified. The main health outcomes used in the analysis were complication and in-hospital mortality rates. Multiple logistic-regression analysis was used to adjust for the effects of confounding variables.

**Effectiveness results**
Complication rates were similar for abdominal hysterectomy and laparoscopically-assisted vaginal hysterectomy (9.1% and 8.8%) and were lower for vaginal hysterectomy (7.8%), for gynaecologic conditions other than pregnancy and cancer. Of the 179,307 patients, 274 died, for an overall in-hospital mortality rate of 15.3 per 10,000 procedures. For all patients, the adjusted odds ratio for death after vaginal or laparoscopically-assisted vaginal hysterectomy as compared with abdominal hysterectomy was 0.23 (95% CI: 0.15 - 0.36). Of the 17,038 with cancer or pregnancy, 152 died (55% of all deaths), for an in-hospital mortality rate of 89.2 per 10,000 procedures. The in-hospital mortality rate for women with benign gynaecologic conditions was 7.5 per 10,000 procedures (8.8, 4.3, and 3.8 per 10,000 procedures for abdominal, vaginal, and laparoscopically-assisted vaginal hysterectomies, respectively).

**Clinical conclusions**
Although factors such as the type of health insurance, the location of the hospital, and the presence of a diagnosis related to pain, endometriosis, or pelvic inflammatory disease were significantly associated with the hysterectomy technique adopted, other considerations, which could not be studied, are also important. For example, the practice style and surgical experience of the physician have been identified as important variables influencing the decision to perform hysterectomy by a specific technique.

**Measure of benefits used in the economic analysis**
No summary benefit measure was identified in the economic analysis, and only separate clinical outcomes were reported.

**Direct costs**
Discounting of costs was not required due to the short time frame of the study. Quantities were not reported separately from the costs. Cost items were not reported separately. Direct health services costs, relating to the period 1988-1994, were considered, such as hospital charges (excluding physicians’ fees). The perspective adopted in the cost analysis was that of insurer and/or patient. The source of charge data was a database. The charge data were inflated to 1994 prices. The price date was 1994.

**Statistical analysis of costs**
Student’s t test was performed.

**Indirect Costs**
Not considered.

**Currency**
US dollars ($).

**Estimated benefits used in the economic analysis**
Cost results
The median hospital charges for laparoscopically-assisted vaginal hysterectomy were $8,108, as compared with $5,723 for abdominal hysterectomy and $5,049 for vaginal hysterectomy.

Authors' conclusions
Laparoscopically assisted vaginal hysterectomy was associated with higher hospital charges, while effectiveness was shown to be similar for the three procedures.

The rate of hysterectomy in Ohio decreased from 1988 to 1994, as laparoscopically-assisted vaginal hysterectomy became more common. Laparoscopically-assisted vaginal hysterectomy was associated with higher hospital charges than the other techniques.

CRD COMMENTARY - Selection of comparators
The comparators chosen were both widely used hysterectomy techniques.

Validity of estimate of measure of benefit
The internal validity of the effectiveness results can not be guaranteed due, as the authors acknowledged, to the impossibility of independently verifying the accuracy of the data. Given the lack of a summary benefit measure in the economic analysis, the study may be regarded as a cost-consequences study.

Validity of estimate of costs
Quantities were not systematically reported separately from the costs and insufficient details of the methods of cost estimation were given. Charges were used as a proxy for true costs. The study lacked a prospective cost analysis.

Other issues
Given the lack of a prospective study design, sensitivity analysis, and a prospective cost analysis, the results may need to be treated with some caution. The issue of generalisability to other setting or countries was not addressed.

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