Introduction of laparoscopically assisted vaginal hysterectomy in a private teaching community hospital

Bernstein P, Fenton P, Walla K, Platt L D

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.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study consisted of patients undergoing hysterectomy. Patients were required to have surgical indications appropriate for abdominal hysterectomy and to be judged inappropriate candidates for primary vaginal hysterectomy.

Setting
Private, university-affiliated, teaching hospital. The study was set in the USA.

Dates to which data relate
Effectiveness, resource use, and cost data were collected between October 1991 and October 1992. The price year was not reported.

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

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
49 LAVHs were performed compared with 51 consecutive TAHs. The mean age of the LAVH group was 46.8 +/-9.4 years, and 46.5 +/-8.4 in the TAH group. No power calculations were reported.

Study design
This was a cohort study carried out at a single centre. Patients were followed up until hospital discharge. No patients were lost to follow-up.
Analysis of effectiveness
The analysis of the clinical study was based on treatment completers only. Primary health outcomes used included indications, operative time, anaesthesia time, uterine weight, haematocrit drop, number of patients transfused, number of units of blood given per patient, complications, number of patients with infections, and post-operative discomfort. There were no statistically significant differences between groups in patient age, gravidity, parity, or surgical indications.

Effectiveness results
The effectiveness results were as follows:

The major indications were a combination of myomata, menometrorrhagia, endometriosis, and pelvic pain.

The most popular technique for performing LAVH was a combination of the multifire surgical stapler and bipolar coagulation in 25 cases.

In 18 cases, bipolar coagulation was used, and in 6 the stapler alone.

The mean operating time was 164+/-48 min for LAVH and 108+/-28 min for TAH (p<0.0001).

Mean anaesthesia times were 222+/-53 min for LAVH and 160+/-34 min for TAH, (p<0.0001).

Mean uterine weights were 161+/-92 g for LAVH and 331+/-354 g for TAH, (p=0.0024).

There were no statistically significant differences between groups in mean haematocrit drop, the number of patients transfused, or the number of units of blood given per patient.

There were no major complications involving injury to the bowel, bladder, or ureter.

43 patients undergoing LAVH and 42 undergoing TAH received prophylactic antibiotics.

The number of patients with infections requiring therapeutic antibiotics was 4% in the LAVH group and 7% in the TAH group.

The number with febrile morbidity was 28% in the LAVH group and 33% in the TAH group.

Although patients undergoing LAVH have less post-operative discomfort, the difference did not achieve statistical significance.

Hospital stay was 2.93+/-1.21 days for patients treated with LAVH compared with 4.00+/-1.54 days for those having TAH (p=0.0002).

Clinical conclusions
LAVH is more effective than TAH and may be performed safely.

Measure of benefits used in the economic analysis
No summary benefit measure was utilised in the economic analysis and clinical outcomes were therefore disaggregated. As such a cost-consequences analysis was performed.

Direct costs
Direct costs were not discounted given the short time frame of the economic analysis (less than 1-year). Quantities and costs were not reported separately. Direct costs covered hospitalisation and treatment costs including fees for surgeon and hospital expenses. The quantity/cost boundary adopted was that of the health service. The estimation of quantities
and costs was based on actual data. Quantity and cost data were collected from the authors' institution. The price year was not reported.

**Statistical analysis of costs**
Statistical analysis was performed using Pearson's chi-squared test and Student's t test.

**Indirect Costs**
Indirect costs were not included.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was reported.

**Estimated benefits used in the economic analysis**
See effectiveness results above.

**Cost results**
The average charge for LAVH was $4,074 higher than the average charge for TAH, (p<0.0001). The mean hospital charge for the 18 procedures using coagulation only was an average of $2,343 less than for the 25 using coagulation plus stapling.

**Synthesis of costs and benefits**
Cost and benefit measures were not combined into cost-effectiveness ratios. The intervention was found to be more costly and more effective (overall) but the cost-consequences design did not permit incremental cost-effectiveness analysis.

**Authors' conclusions**
The authors concluded that laparoscopically assisted vaginal hysterectomy may be performed safely in a private community hospital with appropriate surgeon credentialing and training. Modifying techniques to minimise the use of disposable equipment would make the procedure more cost-effective.

**CRD COMMENTARY - Selection of comparators**
A justification was given for the comparator used, namely currently available therapy. You, as a user of the database, should decide if these health technologies are relevant to your setting.

**Validity of estimate of measure of benefit**
The analysis was based on a cohort study, which was appropriate for the study question but is subject to biases and potential confounders. The study sample was representative of the study population. The authors found that groups at analysis were comparable which strengthens the validity of the results. The authors did not derive a summary measure of health benefit. This was therefore a cost-consequences analysis.

**Validity of estimate of costs**
More details about the cost analysis could have been provided. Some limitations of the reporting were that quantities and costs were not reported separately, no sensitivity analyses were conducted on costs or quantities, charges were used to proxy prices and the price year was not reported.

**Other issues**
The authors did make appropriate comparisons of their findings with those from other studies. The issue of generalisability to other settings was not addressed. The authors do not appear to have presented their results selectively. The study considered patients undergoing hysterectomy and this was reflected in the authors’ conclusions. The effectiveness results may have been affected by the performing surgeon's experience with the procedures.

**Implications of the study**
LAVH may be performed safely in a private hospital setting by experienced laparoscopic surgeons with appropriate credentialing and training. The procedure should be reserved for patients who are not candidates for vaginal hysterectomy. Modifying techniques to minimise the use of disposable equipment would make the procedure more cost-effective.

**Source of funding**
None stated.

**Bibliographic details**

**PubMedID**
9138876

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adult; California; Female; Follow-Up Studies; Hospital Charges; Hospitals, Private /economics /standards; Hospitals, Teaching /economics /standards; Humans; Hysterectomy, Vaginal /economics /methods /utilization; Laparoscopy /adverse effects /economics /utilization; Laparotomy /adverse effects /economics /utilization; Length of Stay; Middle Aged; Pain, Postoperative /physiopathology; Postoperative Complications /epidemiology; Retrospective Studies; Treatment Outcome

**AccessionNumber**
21997006713

**Date bibliographic record published**
30/04/2001

**Date abstract record published**
30/04/2001