Comparison of office loop electrosurgical conization and cold knife conization  
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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
Office loop electrosurgical conization (under local anaesthetic) versus cold knife conization (hospital under general anaesthetic) in women with abnormal Papanicolaou smears. The electrocautery generator used produces an electric circuit with a frequency of 3.8MHz that cuts soft tissue with minimal damage.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with abnormal Papanicolaou smears.

Setting
Hospital and primary care. The study was set in the USA.

Dates to which data relate
Effectiveness, resource use, and cost data were collected between October 1988 and May 1992.

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

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

Study sample
98 women who underwent colposcopic examination due to an abnormal Papanicolaou smear had office loop electrosurgical conization (n=75) versus cold knife conization (n=23). No power calculations or exclusion criteria were reported.

Study design
This was a retrospective cohort study carried out at a single centre. It is not clear what the criteria were for sample selection. 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 length of hospital stay, type of anaesthesia administered, duration of surgery, amount of operative bleeding, frequency of post-operative bleeding requiring an emergency visit, and bleeding requiring suturing. The authors did not show whether, at analysis, groups were comparable in terms of demographic characteristics.

Effectiveness results
The effectiveness results were as follows:

Length of hospital stay for patients undergoing cold knife conization was 6 to 96 hours (mean: 24 hours).

No patient undergoing office loop electrosurgical conization was hospitalised.

Blood loss was 50 to 1,200 ml (mean: 194.5 ml) in patients undergoing cold knife conization and 25 to 120 ml (mean: 40 ml) in patients undergoing office loop electrosurgical conization.

Mean length of surgery was 22 minutes for cold knife conization (not including time for general anaesthesia) and 5 minutes for loop conization (not including local anaesthesia).

4.3% of patients in the cold knife conization group had emergency hysterectomy.

8.7% of patients in the cold knife conization group had operative haemorrhage and 4.3% had post-operative haemorrhage.

1.3% of patients in the loop conization group had post-operative haemorrhage.

4.3% of patients in the cold knife conization group and 1.3% of patients in the loop conization group had an emergency visit after discharge.

Volume of specimens was 1.50 to 5.88 cc (mean: 3.78 cc) in cold knife conization and 0.76 to 5.72 ml (mean: 2.47 ml) in loop conization.

Endocervical depth of specimens was 1.9 to 3 cm (mean: 2.2 cm) in cold knife conization and 1.5 to 2.8 cm (mean: 1.78 cm) in loop conization.

The band of coagulation artifact in the narrowest zones was 60 to 200 μm and in the widest zone 100 to 400 μm.

Clinical conclusions
Loop electrosurgical conization has therapeutic advantages over cold knife conization.

Modelling
No modelling was undertaken.

Measure of benefits used in the economic analysis
No summary benefit measure was used in the economic analysis and, as such, a cost-consequences approach was adopted.

Direct costs
Direct costs were not discounted given the short time frame of the study (less than 1-year). Quantities and costs were not reported separately. Direct costs covered hospitalisation and treatment costs including fees for surgeon.
anaesthesiologist, pathology laboratory, and hospital expenses. The quantity/cost boundary adopted was that of the provider. 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.

**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 total costs for cold knife conization ranged from $1,750 to $4,850 (mean: $2,520). The costs for loop conization ranged from $425 to $750 (mean: $550).

**Synthesis of costs and benefits**
Cost and benefit measures were not combined. The results suggest that the intervention is the strongly dominant strategy but not at statistically tested levels.

**Authors’ conclusions**
The authors concluded that electrosurgical conization may be performed in the office in place of hospital cold knife conization for the diagnosis and treatment of cervical intraepithelial neoplasia.

**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 retrospective cohort study, which was appropriate for the study question, but which may suffer from selection bias and confounding variables. The study sample was representative of the study population. The authors did not state if groups were comparable at analysis, which may also introduce the potential for selection bias and confounding. The authors did not derive a measure of health benefit and the analysis was therefore one of cost-consequences design.

**Validity of estimate of costs**
More details about the cost analysis could have been provided. The results are limited by the following: quantifies and costs were not reported separately, no sensitivity analyses were conducted on costs or quantities, and the price year was not reported.
Other issues
The authors did not make appropriate comparisons of their findings with those from other studies and did not address the issue of generalisability to other settings. The authors do not appear to have presented their results selectively. The study examined women with abnormal Papanicolaou smears and this was reflected in the authors’ conclusions.

Implications of the study
The findings of the study suggest that electrosurgical conization may be performed in the office in place of hospital cold knife conization for the diagnosis and treatment of cervical intraepithelial neoplasia. A prospective, randomised trial (if ethical) would help to validate the results.

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