Colposcopy as a primary screening test for cervical cancer

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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
Colposcopy as a primary screening test for cervical cancer.

Type of intervention
Screening.

Economic study type
Cost-effectiveness analysis.

Study population
Women aged 25 to 64 years self-referring to a district screening centre.

Setting
Tertiary care. The setting was one screening centre in Florence, Italy. The economic study was carried out in Italy.

Dates to which data relate
Data for the effectiveness analysis and resources used were collected during the period January 1995 to December 1996. The price year was not stated.

Source of effectiveness data
The evidence for final outcomes was derived from a single study.

Link between effectiveness and cost data
It is not clear whether costing was undertaken on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were not used to determine the sample size. The study sample comprised 3,000 consecutive women, aged 25 to 64, self-referring to a screening centre, who were examined by cytology and colposcopy in a blind fashion.

Study design
The study was a prospective case series in a single centre. Three colposcopists were involved in the study. Colposcopy was reported immediately, blind of the cytology report, and directed punch biopsy of all questionable acetowhite areas was immediately performed. The smear was interpreted separately, blind of the colposcopic report and of the biopsy outcome (if any).
Analysis of effectiveness
The analysis of the clinical study was based on intention to treat. The results of the study were determined according to the detection rate of histologically confirmed CIN2+ lesions.

Effectiveness results
Nine CIN3 and nine CIN2 lesions were histologically confirmed. Colposcopy was positive in all cases, but punch biopsy was less severe than CIN2 in two cases and CIN2 or CIN3 lesions were confirmed at diagnostic large-loop resection performed because of a cytologic report of CIN2. Cytology was negative in four of nine CIN3 lesions and was negative or less severe than CIN2 in 3 and 4 CIN2 lesions, respectively.

Clinical conclusions
The present study clearly demonstrates that colposcopy is more sensitive than cytology at detecting CIN2+ lesions.

Measure of benefits used in the economic analysis
CIN2+ lesions detected was used as the outcome measure of the economic analysis. Four scenarios based on the screening protocol adopted were studied:

1. screening by cytology followed by colposcopic assessment for cytologic report of AGUS/CIN1 or more severe;
2. screening by cytology followed by colposcopic assessment for cytologic report of AGUS/CIN1 or more severe, or in case of persistent ASCUS at repeat smear;
3. screening by colposcopy followed by cytology in cases with evidence of condyloma at punch biopsy, and
4. screening by colposcopy alone.

Direct costs
Only health services costs were considered. Costs were determined according to a detailed estimate of actual screening costs; it was stated that this estimate was intended to be reported elsewhere. Items included in the cost-effectiveness analysis were: accrual, cytology, colposcopy, report to negatives, recall of positives, biopsy and loop resection. Resource quantities were not reported separately from costs.

Indirect Costs
Not included.

Currency
US dollars ($). Conversion from Italian lira was carried out at an exchange rate of 1,600 lira per $1.

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
8 CIN2+, 11 CIN2+, 18 CIN2+ and 16 CIN2+ would have been detected by scenarios 1, 2, 3 and 4 respectively. The relative sensitivity of each of the scenarios would be 44.4%, 62.2%, 100% and 88.9% respectively. The authors noted that being more sensitive than cytology, colposcopy will cause an excess of over-diagnosis and overtreatment but will also detect progressive lesions which would have been missed at cytology.
Cost results
The cost per screened woman for each of the scenarios was $17.98, $19.40, $23.86 and $22.10 respectively.

Synthesis of costs and benefits
The results of the four scenarios were:

1. screening by cytology followed by colposcopic assessment for cytologic report of AGUS/CIN1 or more severe; eight CIN2+ lesions would be detected at a cost of $17.98 per screened woman or $6,743 per detected CIN2+ lesion;

2. screening by cytology followed by colposcopic assessment for cytologic report of AGUS/CIN1 or more severe, or in case of persistent ASCUS at repeat smear; cost of $19.4 per screened woman or $5,291 per detected CIN2+ lesion;

3. screening by colposcopy followed by cytology in cases with evidence of condyloma at punch biopsy; all CIN2+ lesions would be detected at a cost of $23.86 per screened woman or $3,977 per detected CIN2+ lesion;

4. screening by colposcopy alone; sixteen CIN2+ lesions would be detected at a cost of $22.1 per screened woman or $4,144 per detected CIN2+ lesion.

Authors' conclusions
Although they believe it might be feasible and cost-effective, the authors do not suggest screening by colposcopy alone as an alternative to cytologic screening in their setting. They do believe, however, that when properly used, colposcopy deserves to be considered as a possible adjunct to cytology to reduce screening frequency (for example, by adopting a routine cyto-colposcopic approach every 5-8 years).

CRD COMMENTARY - Selection of comparators
The reason for the choice of comparators is clear.

Validity of estimate of measure of benefit
The accuracy of the various screening protocols as reported in the economic analysis is likely to be internally valid, although no power calculation to determine sample size or sensitivity analyses were carried out.

Validity of estimate of costs
Resource quantities were not reported separately from prices and inadequate details of the methods of cost estimation were given (although the authors stated that they intended to publish full details elsewhere).

Other issues
The issue of generalisability to other settings or countries was addressed by the authors.

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None stated.

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