Costs and benefits of cervical screening. III: Cost/benefit analysis of a call of previously unscreened women

Waugh N, Smith I, Robertson A, Reid G S, Halkerston R, Grant A

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
Cervical screening of women with no record of a previous smear.

Type of intervention
Primary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
Women with no record of a previous smear.

Setting
Hospital. The economic study was set in Tayside, UK.

Dates to which data relate
Effectiveness and resource use data were collected from studies published between 1968 and 1992. Cost data were collected from a study published in 1996. The price year was 1991.

Source of effectiveness data
Effectiveness data were derived from a literature review.

Outcomes assessed in the review
The review assessed the following outcomes: the progression of cervical intraepithelial neoplasia (CINIII) to cancer, death rate, life years saved, and life expectancy.

Study designs and other criteria for inclusion in the review
Not stated.

Sources searched to identify primary studies
Not stated.

Criteria used to ensure the validity of primary studies
Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
At least 13 studies were included in the review.

Methods of combining primary studies
The narrative method was used to combine studies.

Investigation of differences between primary studies
Not stated.

Results of the review
The proportion of cases of CINIII that would progress to cancer if untreated ranged between 50% and 100%. The progression rate from CINI or II to cancer was 12% if 50% of CINIII progresses to cancer and 24% if all CINIII were to progress to cancer. In cases of invasive cancer, death would occur at the age of diagnosis plus average survival. Based on previous studies, CINIII was assumed to take 4 years to progress to frank cancer. In the minority of cases where CINI and II progress to CINIII, it was assumed to take three years. After clinical presentation, 50% of women would be cured, and 50% would die after a mean survival of 2.5 years.

Measure of benefits used in the economic analysis
The number of lives and life years saved were used as the measures of benefit.

Direct costs
Direct costs were discounted at an annual rate of 7%. Quantities and costs were reported separately. Direct costs included costs of cervical smears, colposcopy clinic attendance, hospital admission, and target payments. The quantity/cost boundary adopted was that of the health service. The estimation of quantities and costs was based on actual data. Cost data were derived from a published study. The price year was 1991.

Statistical analysis of costs
Not reported.

Indirect Costs
Indirect costs were not included.

Currency
UK pounds sterling (§).

Estimated benefits used in the economic analysis
If screening had not identified women, it would be expected that at least 19 would present clinically with invasive cancer. About half would then be cured, but the rest would die, after an average of 2.5 years. If all CINIII cases were to progress to cancer, around 32 would develop cancer, and half of those would survive. The screening programme
therefore saved at least 9 lives, and possibly as many as 16. The total life years saved was 327 years with conservative CINIII progression and 522 with 100% progression. Benefits were not discounted.

Cost results
The marginal cost of the cervical screening programme for 2,314 women was 52,019.

Synthesis of costs and benefits
The incremental cost-effectiveness of the cervical screening programme was 5,780 per life saved, or 159 per life year saved, at 50% progression, or 3,251 per life and 100 per life year saved at 100% progression.

Authors' conclusions
Cervical screening of unscreened women is highly cost-effective. The first priority for the cervical screening programme should be comprehensive coverage.

CRD COMMENTARY - Selection of comparators
A justification was given for the comparator used namely the current programme of no screening. You, as a user of the database, should decide if this applies to your own setting.

Validity of estimate of measure of benefit
The authors did not state that a systematic review of the literature had been undertaken. More details could have been provided about the design and conduct of the review and the methods used to combine the primary effectiveness estimates. Effectiveness estimates were derived from primary studies and provided the benefits used in the effectiveness analysis. Benefits were not discounted, which is considered an appropriate option in the UK.

Validity of estimate of costs
All categories of costs relevant to the perspective adopted were included in the analysis. Quantities and costs were reported separately. No sensitivity analysis was conducted on costs or quantities. The price year was reported. Costs were discounted at 7%, which might not reflect the discount rates recommended in other countries. Cost results apply to the National Health Service in Scotland and might differ in other countries or settings.

Other issues
The authors did not make appropriate comparisons of their findings with those from other studies nor did they comment on the advantages and disadvantages of their research. The issue of generalisability to other settings was discussed. Sensitivity analysis could have been used to account for uncertainties around the data. As there is no evidence that the authors used systematic approaches in identifying and using the effectiveness evidence, the findings should be interpreted with a degree of caution.

Implications of the study
The authors suggest that coverage for all unscreened women should be the first priority of the screening programme.

Source of funding
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Other publications of related interest

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