Implementation of an antenatal serum screening programme for Down's syndrome in two districts (Brighton and Eastbourne)

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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
Measurements of alpha-fetoprotein, unconjugated oestriol and human chorionic gonadotrophin concentrations (Triple test) for prenatal detection of Down's syndrome in second trimester serum samples.

Type of intervention
Screening.

Economic study type
Cost-effectiveness analysis.

Study population
Pregnant women with singleton pregnancies.

Setting
The economic analysis was carried out in South of England maternity units.

Dates to which data relate
The clinical data was collected between January 1991 and December 1992, and the costs are estimated for this period.

Source of effectiveness data
Evidence was based on a single study.

Link between effectiveness and cost data
Costing was undertaken out of the same patient sample used for the effectiveness study. It was not stated if the costing was undertaken prospectively or retrospectively.

Study sample
10,433 women booking in for first antenatal visit between Jan. 1991 and Dec. 1992. 67% of the women participated in the study. Sample size was not determined by power calculations.

Study design
Case series, multicentre study. Length of follow-up was not specified, but it was stated that length of follow-up was such that all pregnancies were completed. Loss to follow up was 4%.
Analysis of effectiveness
Analysis based on treatment completers/intention to treat. Outcomes were: uptake of screening, Down's syndrome pregnancies detected and averted, uptake of amniocentesis, test sensitivity and specificity.

Effectiveness results
Uptake rate for the test was 67% (6990 pregnancies). 17% declined the test and 6% booked too late for the test. Uptake of amniocentesis was 80% after a positive test result (82% for women under the age of 36 and 76% for women aged 36 or over). Triple Test had a sensitivity of 73% with a specificity of 97.1%. However, if intention to treat analysis is used then the test had a sensitivity of 47%.

Clinical conclusions
The test is acceptable and uptake is sufficient to make it more effective than a policy based on maternal age alone.

Measure of benefits used in the economic analysis
Numbers of cases of Down's syndrome identified.

Direct costs
Some costs and quantities were reported separately, such as the number of tests and the number of amniocenteses. Only health service resources were costed, such as biochemical analyses, office costs, ultrasound scanning, counselling of all women, and transporting specimens. The estimation of quantities was based on the unit of analysis. Price date related to Jan 1991 - Dec 1992 and quantity of resources was measured in the same period.

Currency
UK pounds sterling (£)

Sensitivity analysis
Not undertaken.

Estimated benefits used in the economic analysis
Eight Down's syndrome pregnancies were identified.

Cost results
The total cost of the programme was 248,300.

Synthesis of costs and benefits
The cost per identified Down's pregnancy was 31,037.

Authors' conclusions
The cost results are comparable to other studies. The programme was successful.

CRD Commentary
The economic aspects of the study are weak. A minor point is that costs of pregnancy termination was not included. Unusually, the effectiveness denominator was identified pregnancies rather than averted births. The most serious weakness of this study is that no account was taken of the numbers of pregnancies that would have been averted by
using maternal age alone, which was the relevant comparator. In the paper the authors stated that this would have been 24%. Therefore, instead of 8 pregnancies identified by the programme the correct figure should have been 6 (as 2 would have been detected anyway using maternal age screening), which increases the cost per identified pregnancies to 41,383 or an increase of 33%.

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