Projected cost-savings with herpes simplex virus screening in pregnancy: towards a new screening paradigm
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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.

CRD summary
The aim was to evaluate the cost-effectiveness of a herpes simplex virus screening programme to identify pregnant women susceptible to infection, compared with the usual care. The authors concluded that accurate tests for the virus in pregnant women and their partners could reduce neonatal incidence of infection and save health care costs. There were a few limitations to the study, in particular the lack of detail on some of the methods, which makes it hard to assess the authors' conclusions.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The aim was to evaluate the cost-effectiveness of a herpes simplex virus (HSV) screening programme to identify pregnant women susceptible to infection, compared with usual care.

Interventions
Serological screening of pregnant women and their partners was compared with no screening. The management of prevalent HSV (types 1 and 2) was the same for both strategies.

Location/setting
USA/primary care.

Methods
Analytical approach:
The authors constructed a decision-analytic model to combine the cost and effectiveness data. A hypothetical cohort of 100,000 pregnant women in their second trimester of pregnancy (24 to 28 weeks) was modelled. The authors did not explicitly state the perspective.

Effectiveness data:
The clinical evidence came from a number of published studies, including a cohort study for the natural history of disease and progression rates, and expert opinion. The main clinical parameters were the prevalence of HSV, the rates of HSV transmission from mother to infant, and the accuracy of screening.

Monetary benefit and utility valuations:
The utility estimates were from published sources that used the Health Utilities Index (HUI) 2.

Measure of benefit:
The benefit measure was quality-adjusted life-years (QALYs). The incidence of neonatal HSV cases (with or without testing) was reported. A discount rate of 3% was applied to future outcomes.

Cost data:
The direct costs associated with screening, delivery, and the occurrence of neonatal HSV infection were from published studies. They were adjusted to 2009 US dollars ($), using the medical care component of the consumer price index. Future costs were discounted at rate of 3%.
Analysis of uncertainty:
One-way and multi-way sensitivity analyses were performed on the key model parameters. A probabilistic sensitivity analysis, with 10,000 iterations, was performed.

Results
The cost per 100,000 pregnant women was estimated to be $663.32 million with no testing, compared with $662.27 million with screening for women and their partners.

The average quality-adjusted life expectancy of infants without screening was 30.4948, compared with 30.4969 years with screening.

Screening for women and their partners was dominant, as it saved costs and was more effective compared with no screening.

These results were generally robust to the changes in the model inputs. The probabilistic sensitivity analyses indicated that testing women and their partners was cost-effective in over 99% of simulations, assuming a willingness to pay of $50,000 per QALY, and it was cost saving in about 90% of simulations.

Authors' conclusions
The authors concluded that accurate tests for the HSV in pregnant women and their partners could reduce neonatal HSV incidence and save health care costs.

CRD commentary
Interventions:
The intervention was described briefly, but the details of the screening test were not provided. The comparator was no screening, which was the usual practice.

Effectiveness/benefits:
The effectiveness data were from a number of published studies and expert opinion. These sources were reported in a table, but the studies were not described sufficiently nor were the methods used to elicit the expert opinion. These details should be available from a published study (Fisman, et al. 2003, see ‘Other Publications of Related Interest' below for bibliographic details). No systematic review was reported to identify these sources, making it unclear if the best available information was used. QALYs were an appropriate measure of benefit, given the consequences of the infection for quality of life and survival. The authors reported that the utility values were estimated using the HUI-2, but the source of these data, the health states to which they applied, and the source population were not provided, and it is unclear if these methods were appropriate. The authors did not explicitly state the time horizon, but it appears to have been lifetime.

Costs:
The authors did not explicitly state the perspective and only the direct costs were included. The published sources for the cost estimates were not described, so it is unclear whether they were relevant to the setting. A discount rate of 3% per year was applied to both the costs and effectiveness (QALYs). The costs were adjusted to 2009 US dollars, using the health care component of the consumer price index, and no currency conversion was reported, but the setting was not explicitly stated and could have been Canada rather than the USA. This reduces the transparency of the analysis.

Analysis and results:
The analytic approach was poorly described, but a diagram of the model was given. The base-case results were reported in a table, and the sensitivity analysis was reported in full. The authors highlighted and acknowledged some limitations of their analysis.

Concluding remarks:
There were a few limitations to the study, in particular the lack of detail on some of the methods, which makes it hard to assess the authors’ conclusions.
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