Community-based distribution of misoprostol for treatment or prevention of postpartum hemorrhage: cost-effectiveness, mortality, and morbidity reduction analysis

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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 assess the cost-effectiveness of misoprostol in the treatment or prevention of postpartum haemorrhage, in community settings in India. The authors concluded that misoprostol as either treatment or prevention was cost-effective, compared with the standard care, in reducing mortality and anaemia associated with haemorrhage. The methods were appropriate, but it was not clear how uncertain the treatment effectiveness data were and whether all the relevant data were used.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to assess the cost-effectiveness of misoprostol, for the treatment or prevention of postpartum haemorrhage, in a community setting in India.

Interventions
For prevention, 600 micrograms of oral misoprostol was given to all women on delivery and, for treatment, 800 micrograms misoprostol was given, under the tongue, to women after 700mL of blood loss. Both strategies were compared with, and in addition to, the standard management, which was delivery aided by a village health worker without the administration of medication.

Location/setting
India/community care.

Methods
Analytical approach:
The authors used a published Monte-Carlo model to estimate the outcomes for mothers delivering in the community, with the alternative strategies, and to determine the clinical and economic impact of each strategy. The model used a combination of published evidence, regional data, and expert opinion. The authors stated that the perspective was that of the Indian health sector.

Effectiveness data:
The clinical effectiveness data for misoprostol treatment came from two published randomised controlled trials. The main clinical parameters were the decrease in postpartum haemorrhages and the control of haemorrhages.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The primary measure of benefit was the number of disability-adjusted life-years (DALYs) gained. Secondary measures of benefit were used to calculate the DALYs and these were the number of years of life lost and the years of life lost due to disability.

Cost data:
The direct costs included the costs of training birth attendants, the delivery fees of birth attendants, and the costs of drugs. The costs of the attendants were from published studies, including one from the Indian community setting. The costs of drugs were based on international average prices from Management Sciences for Health, 2006. The currency was US dollars ($) and the price year was 2009.

Analysis of uncertainty:
Sensitivity analyses, based on parameter distributions assigned in the published model, were run over a series of iterations.

Results
The total cost of misoprostol was $21,212 for treatment and $26,933 for prevention. The total cost of standard care was $20,000. The incremental cost of misoprostol was $1,212 for treatment compared with standard care and $5,721 for prevention compared with treatment. Misoprostol saved 216 DALYs as treatment compared with standard care (325 DALYs) and 34 DALYs as prevention compared with treatment.

The incremental cost-effectiveness ratio of misoprostol treatment compared with standard care was $6 per DALY and for misoprostol prevention compared with treatment it was $170 per DALY.

Authors' conclusions
The authors concluded that misoprostol either as treatment or prevention was cost-effective compared with standard care in reducing mortality and anaemia associated with postpartum haemorrhage.

CRD commentary
Interventions:
The two intervention strategies and the standard care were clearly and concisely described and they were relevant to the study setting. The standard care was likely to be the usual care in other study settings. There might be other medications, relevant to the context, that could be more cost-effective than misoprostol.

Effectiveness/benefits:
The effectiveness data were from studies with strong designs and one was conducted in the study setting. Few details of these studies were provided. The methods used to identify these studies were not described and it is unclear if the best evidence available was used. The measure of benefit was appropriate and the calculation method was well described. The authors did not state the time horizon, but the methods suggest that a lifetime horizon was used. The benefits were not discounted.

Costs:
The cost perspective was clearly defined and it appears that all the relevant costs were included. The price year and currency were provided, but no discounting of long-term costs was reported. The sources of cost data were provided and appear to have been appropriate for the study setting. The cost estimates were clearly presented.

Analysis and results:
The structure of the model was adequately described and a diagram was given. The reference for the published model was provided. The incremental analysis was appropriate for determining the cost-effectiveness of the alternative strategies. The uncertainty was assessed, using distributions for the baseline parameters, except for the misoprostol treatment effects, which were not assessed. The base-case results were well reported and the authors highlighted the strengths and limitations of their approach.

Concluding remarks:
The methods were adequate, but it was not clear how uncertain the treatment effectiveness data were and whether all the relevant data were used.

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