Cost-effectiveness analysis of alternative first-trimester pregnancy termination strategies in Mexico City


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
This study evaluated the costs and effects of first-trimester abortion techniques, compared with unsafe abortion, for pregnant women in Mexico City. The authors concluded that changing from dilation and curettage to clinic-based manual vacuum aspiration, and enhancing access to medical abortion could minimise abortion-related morbidity and mortality. The methods were satisfactory, but some, particularly the selection of cost and effectiveness data, were not well reported. The authors’ conclusions appear to be appropriate, but there were some limitations.

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

Study objective
The aim was to evaluate the costs and effects of different first-trimester abortion techniques, compared with unsafe abortion, in 25-year-old pregnant women seeking early termination of pregnancy in Mexico City.

Interventions
In the base case, the interventions were hospital–based dilation and curettage (D&C), hospital- or clinic-based manual vacuum aspiration (MVA), and medical abortion using vaginal misoprostol. These interventions were assumed to be equally available in the study setting.

In a secondary analysis, combinations of interventions were compared with unsafe abortion. This reflected their availability in the setting at the time.

Location/setting
Mexico/primary and secondary care.

Methods
Analytical approach:
A Markov model was developed based on a previous maternal mortality policy model (Hu, et al. 2007 see ‘Other Publications of Related Interest’ below for bibliographic details). A lifetime horizon was used. The authors reported that the study took the perspective of a government payer and a modified societal perspective.

Effectiveness data:
The best available data, which included both published and grey literature, were synthesised. The main outcomes included the complications of each method of abortion, and the woman’s life expectancy.

Monetary benefit and utility valuations:
Quality weights and the durations of procedure failures and complications were included: the sources for these were cited.

Measure of benefit:
The measure of benefit was quality-adjusted life-years (QALYs), which were discounted at a rate of 3% per annum.

Cost data:
The cost categories included the direct medical costs and the personal costs of each strategy and its complications. The costs of patient travel time, transport, and lost wages were included for the modified societal perspective. The costs of procedures and long-term consequences were from published literature. The direct costs were from a primary Mexican study carried out in four health care facilities. The personal costs were from the literature. The currency was US dollars ($), and the price year was 2005. The costs were discounted at a rate of 3% per annum.

Analysis of uncertainty:
One-way and two-way sensitivity analyses were performed to assess the impact of variations in the key model inputs and assumptions.

Results
The discounted QALYs gained per 1,000 women, compared with unsafe abortion, were 66.2 for clinic-based MVA, 65.8 for vaginal misoprostol, 66.2 for hospital-based MVA, and 66.0 for D&C. The lifetime costs per woman, from a modified societal perspective, were $365 for unsafe abortion, $89 for clinic-based MVA, $129 for vaginal misoprostol, $129 for hospital-based MVA, and $174 for D&C.

Clinic-based MVA dominated all other strategies as it was more effective and cheaper. All the options for safe abortion, including combinations of treatments, led to gains in life expectancy and QALYs as well as lower costs, compared with unsafe abortion.

The sensitivity analysis found that the most influential variables were the cost and efficacy of misoprostol, which had similar outcomes to MVA with only modest improvements in its cost or efficacy.

Authors’ conclusions
The authors concluded that safe abortion was associated with health benefits and cost savings compared with unsafe abortion. Changing from D&C to clinic-based MVA and enhancing access to medical abortion could minimise abortion-related morbidity and mortality.

CRD commentary
Interventions:
The interventions were adequately described, and all the relevant comparators appear to have been included. The exclusion of one combination (mifepristone plus misoprostol) was justified on the grounds that it was not widely available in the setting.

Effectiveness/benefits:
The authors stated that they synthesised the best available data, but it was unclear if these data were identified by a systematic review. No search strategy nor identification and selection methods were reported, which makes it uncertain if all the best available evidence was included. Little information, besides references, was provided on the benefit measure. The method of obtaining the utility values was not reported, which makes it difficult to assess their quality. The authors stated that they used utilities for sexually transmitted diseases, as there were no data for abortion complications, and this might add uncertainty to the results.

Costs:
The cost categories appear to have been relevant to the government payer perspective. A clear definition of the modified societal perspective was not given, so it was unclear if all the relevant costs were included. The costs were appropriately discounted and adjusted for inflation.

Analysis and results:
The analysis methods were not reported in detail, which makes it hard to assess if the synthesis was appropriate. More details should be available in the maternal mortality policy model publication. The baseline effects of unsafe abortion were not reported. The results were appropriately synthesised in an incremental analysis. The impact of uncertainty was reasonably evaluated. Some limitations, which were acknowledged by the authors, were that their primary data sources were not high quality, there was a lack of local and regional data on the topic, some abortion-related morbidity data were excluded, and the broader societal costs of a maternal death were omitted.
Concluding remarks:
The methods were satisfactory, but some of them, particularly the selection of cost and effectiveness data, were not well reported. The authors’ conclusions appear to be appropriate, but there were some limitations.

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