Cost effectiveness of alternative planned places of birth in woman at low risk of complications: evidence from the Birthplace in England national prospective cohort study

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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 study explored the cost-effectiveness of planned alternative places of birth for women with low risk of complications in England. The authors concluded that for multiparous (two or more pregnancies) women at low risk of complications, planned birth at home was the most cost-effective option. The methodology of the study seemed appropriate with clear and transparent reporting. The authors’ conclusions appear appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study was explored the cost-effectiveness of alternative planned places of birth for women with low risk of complications in England, UK.

Interventions
The alternative planned places for childbirth were at home, in free-standing midwifery units (not on the same site as an obstetric unit), in alongside midwifery units (on the same site as an obstetric unit), or in obstetric units.

Location/setting
UK/secondary care

Methods
Analytical approach:
The analysis was based primarily on a single cohort study for the Birthplace in England programme (Birthplace in England Collaborative Group. 2011, see 'Other Publications of Related Interest' below for bibliographic details), which collected data from all NHS Trusts in England. The time horizon of the analysis matched the duration of follow-up of the cohort study, which was the period from which a woman began the start of care for labour until discharge from the service following the birth of her child. The authors stated the study perspective to be that of the health system (UK NHS).

Effectiveness data:
A single study was used primarily, supported by expert opinion from focus groups that included a sample of midwives from across England. The study design was prospective cohort. Potential confounders of cost differences between settings were collected and used in multiple regression analyses. The sample size was 64,538 women; the data was collected between 2008 and 2010. The primary clinical estimate was the number of adverse perinatal outcomes avoided; secondary outcomes included maternal morbidity and numbers of normal births.

Monetary benefit and utility valuations:
There were no utility valuations in this study. The monetary benefit calculated was the incremental intervention costs less the savings from later reduced demand for health services.

Measure of benefit:
The primary measure of benefit was the cost per adverse perinatal outcome avoided. The cost per adverse maternal morbidity avoided and the cost per additional normal birth was also calculated. The authors reported the net monetary

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benefit.

Cost data:
Cost categories included were the direct costs to the UK NHS, the health system in the analysis. The sources of resource use and prices were from individual data collection forms designed as part of the study and an expert-opinion focus group that involved midwives. The price year was 2009 to 2010. Bottom-up and top-down costing methods were used, along with estimates from a range of sources including hospital finance departments and national sources of data (such as NHS reimbursement and Department of Health unit costs).

Analysis of uncertainty:
Bootstrapping was used to estimate uncertainty around ratios. Sensitivity analyses were used to consider variation in key cost drivers. Results of the uncertainty analysis were presented using ratios, confidence ellipses, and cost-effectiveness acceptability curves.

Results
There were no differences in adverse perinatal outcomes (the primary outcome measure) between obstetric units and other settings.

The mean cost per woman for childbirth in an obstetric unit was £1,631, for a maternity unit alongside an obstetric unit was £1,461, and for a freestanding maternity unit was £1,435. The mean cost per woman for childbirth at home was £1,067.

Home birth generated a greater mean net benefit (£592), than birth at a freestanding maternity unit (£263) or birth at a maternity unit alongside an obstetric unit (£167) compared with obstetric units.

Authors' conclusions
The authors concluded that for multiparous (two or more pregnancies) women at low risk of complications, planned birth at home was the most cost-effective option.

CRD commentary
Interventions:
The level of reporting of the interventions was good; they were clearly described and appeared to be highly relevant to the study setting (UK NHS). It was possible that these options would be relevant to other settings.

Effectiveness/benefits:
The authors used a highly representative source of data (large prospective cohort study) and attempted to account for problems of selection bias. The level of reporting was good. The detail of the derivation of estimates was sufficient.

Costs:
The costs included were relevant to the perspective of the UK NHS. The collection and measurement of resource data, and the attachment of costs, were described in detail. The level of reporting was good. The authors did not describe whether discounting was performed but, in view of the short time horizon of the study, it was appropriate for discounting to be omitted.

Analysis and results:
An incremental approach was appropriate to assess the relative cost-effectiveness of the different options. The level of reporting of cost data was good, although the reporting of effectiveness outcomes could have been more detailed. Reasonable steps were taken to assess uncertainty in the results. The authors discussed the major limitations of their work.

Concluding remarks:
The methodology of the study seemed appropriate with clear and transparent reporting. The conclusions reached by the authors appear appropriate.
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