Reductions in cost and cesarean rate by routine use of external cephalic version: a decision analysis

Gifford D S, Keeler E, Kahn K L

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
Peripartum management of the term breech pregnancy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Pregnant women with breech presentation of the baby at delivery. Term pregnancies were considered.

Setting
Hospital. The economic study was conducted in Los Angeles, California.

Dates to which data relate
Effectiveness data referred to the period 1981 - 1991. Cost data referred to the period 1989-1992. Although not explicitly stated, it seems that 1993 prices were used.

Source of effectiveness data
Review of previously completed studies.

Modelling
A decision tree was used to calculate the predicted delivery outcomes and the costs associated with each option.

Outcomes assessed in the review
Cesarean rates, proportion of cephalic presentations in labour, and maternal and infant mortality and morbidity.

Study designs and other criteria for inclusion in the review
No particular study design, inclusion criteria or exclusion criteria were mentioned by the authors.

Sources searched to identify primary studies
MEDLINE and Health Planning and Administration databases.
Criteria used to ensure the validity of primary studies
Not stated

Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
Four randomised controlled trials, of which three were described in a previous meta-analysis.

Methods of combining primary studies
Meta-analysis (previously published), reappraised with the inclusion of a subsequent study.

Investigation of differences between primary studies
Not stated.

Results of the review
Overall, applying external cephalic version to all term breeches will result in fewer cesarean deliveries than allowing a 'selected' trial of labour in the same population. The smallest percentage of births by cesarean (24.5%) can be expected if external version is followed by a selected trial of labour for failed versions, but routine cesarean delivery for all failed versions still leads to fewer operations (31.9%) than would routine trial of labour without attempted version (62.6%). Both management strategies that include external cephalic version will also result in a reduction in the overall percentage of breech births.

Measure of benefits used in the economic analysis
Cesarean rates.

Direct costs
Direct health service costs were considered: physician costs, x-ray pelvimetry costs, and hospital costs. Californian charge data were used. Charges from 1989 were multiplied by 1.37 to reflect charge increases of 11% per annum. Prices seem to refer to 1992. Quantities and costs were not reported separately.

Currency
US dollars ($).

Sensitivity analysis
One-way sensitivity analyses were performed on both costs and criteria of eligibility for trial of labour.

Estimated benefits used in the economic analysis
Cesarean rates (+/- 1.96 SD) were:

25.4% (+/- 5.4%) in the ECV and TOL strategy;

31.9% (+/- 6.6%) in the ECV and CD strategy;
62.6% (+/- 9.9%) in the selected TOL strategy; and 88.6% (+/- 3.4%) in the scheduled CD strategy.

Cost results
Expected costs per case were:

- $8071 for the ECV and TOL strategy;
- $8276 for the ECV and CD strategy;
- $8755 for the selected TOL strategy and
- $9544 for the scheduled CD strategy.

Synthesis of costs and benefits
No incremental analysis was performed to assess the relative cost-effectiveness of the different delivery strategies. However, given the authors’ estimates of $1000 for the cost of external cephalic version and a 36% eligibility for trial of labour, ECV and TOL was the dominant strategy.

Authors’ conclusions
Although the liberal use of vaginal delivery for term breech pregnancies has been suggested as one way of lowering the cesarean rate, the addition of routine external cephalic version to the management strategy would result in more vaginal deliveries and lower costs than strategies that allow vaginal delivery but do not include an attempted cephalic version. Routine cesarean without attempted external cephalic version resulted in excessive operative deliveries. Results were robust to sensitivity analysis.

CRD Commentary
As far as the validity of the effectiveness data is concerned, the method used to combine the different estimates for the relevant probabilities seems appropriate (95% confidence intervals are reported, although the calculations depend on the assumption, explicitly stated by the authors, that effects were equal in all trials from which information was pooled). The inclusion of relevant studies for the analysis depends on the reviewing method, for which more information should have been provided. In the costing procedure, using charges as a proxy for costs hinders generalisability of results to other settings, although this is compensated for by a good sensitivity analysis on cost data. The authors admit that one drawback of this study is that the analysis does not included the hazards of breech delivery to the infant, nor of cesarean delivery to the mother.

Implications of the study
Further randomised controlled trials are necessary to determine the safest method of delivery for the term breech infant.

Source of funding
Supported by the Agency for Health Care Policy and Research.

Bibliographic details