Economic evaluation of neonatal intensive care of very low birth weight infants

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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.

Health technology
Neonatal intensive care.

Type of intervention
Treatment.

Economic study type
Cost-utility analysis and cost-effectiveness analysis.

Study population
Infants with birth weight 500-999g and birth weight 1000-1499g.

Setting
The study was carried out in Canada.

Dates to which data relate
Price related to 1978.

Source of effectiveness data
Single study.

Study sample
There is evidence that the study sample is representative of the clinical study question.

Study design
Multi-centre retrospective before-after study. The duration of follow-up of treatment cohort was 5y 5m pre-, and 4y 11m post-.

Analysis of effectiveness
Primary outcomes were mortality. At analysis groups were shown or adjusted to be comparable in age, sex or prognostic.

Measure of benefits used in the economic analysis
Quality-adjusted life years (QALYs), lives saved and life years gained. The McMaster classification was used to
describe the health states. The McMaster scale was used as a basic method of valuation of health states. Society values were used to assess the health states.

**Direct costs**

Direct costs were to the health service, other agencies, the patients and their relatives. Price information related to 1978.

**Currency**

Canadian dollars (Can$). In the DH Register of Cost-effectiveness Studies, the original results were converted to UK pounds sterling () using GDP purchasing power parities and reflated to 1991, using the NHS pay and prices index.

**Sensitivity analysis**

Sensitivity analysis was carried out using the method of single parameter variation.

**Estimated benefits used in the economic analysis**

For babies weighing 500-999g: QALYs gained due to intervention were 9.1, QALYs gained due to no intervention were 5.5 and incremental QALYs were 3.6 (all values not discounted). For babies weighing 1000-1499g: QALYs gained due to intervention were 36.0, QALYs gained due to no intervention were 27.4 and incremental QALYs were 8.6 (all values not discounted). Outcome duration was life long and treatment side-effects were included.

**Synthesis of costs and benefits**

Intervention and comparator cost durations were life long. For neonatal intensive care unit for infants with birth weight 500-999g: incremental cost per life saved was 125000 (discounted at 5%); incremental cost per life-year gained was 11400 (costs and benefits discounted at 5%, with a value of 6240 when costs and benefits were not discounted. The incremental cost per QALY: was 27400 (costs and benefits discounted at 5%), with a value of 11100 when costs and benefits not discounted. The range of incremental cost per QALY a lowest value of 17700, and highest value of 55700. For neonatal intensive care unit for infants with birth weight 1000-1499g: incremental cost per life saved was 72800 (discounted at 5%); incremental cost per life-year gained was 3550 (costs and benefits discounted at 5%), with a value of 1100 when costs and benefits not discounted. The incremental cost per QALY was 3910 (costs and benefits discounted at 5%), with a value of 1100 when costs and benefits were not discounted. The range of incremental cost per QALY was a lowest value of 1200, and highest value of 6100. The sensitive parameters were discount rate; life expectancy; loss to follow-up; and utility values.

**CRD Commentary**

(This commentary was not written by CRD but by the authors of the DH Register).

1)Life time health effects and survival are extrapolated from limited data. 2)There were no health omissions 3)The sensitivity analysis was adequate. 4)Costing was extensive, excluding production gains.

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