The cost-effectiveness of a long-acting reversible contraceptive (Implanon) relative to oral contraception in a community setting

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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
This study examined the cost-effectiveness of long-acting reversible contraception (LARC, namely Implanon) in comparison with oral contraception in women aged 13 to 48 years. The authors concluded that LARC was a cost-effective alternative to oral contraception from the perspective of the Welsh National Health Service. The study had some methodological limitations, which might affect the validity of the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the cost-effectiveness of long-acting reversible contraception (LARC, Implanon) in comparison with oral contraception in women aged 13 to 48 years.

Interventions
The LARC was a subdermal etonogestrel implant (Implanon). The comparator was conventional oral contraception, mainly using the combined oral contraceptive pill.

Location/setting
UK/primary care.

Methods
Analytical approach:
This economic evaluation was based on a single study and had a time horizon of three years. The authors stated that it was carried out from the perspective of the National Health Service (NHS) in Wales.

Effectiveness data:
The clinical data came from a retrospective cohort study, which was carried out at the Gwent Sexual and Reproductive Health service centre. All women who had an implant fitted in 2003 were included. Case notes were reviewed and matched for age and borough to a cohort of existing or new and ongoing users of oral contraception. Patient data were collected for up to 36 months and where data were missing patients were contacted, either directly or via the general practitioner. There were 493 patients in each group (mean age 23.8 years in the implant group and 23.6 years in the oral group). The key clinical endpoint was the number of pregnancies attributable to the failure of contraception.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The summary benefit measure was the number of pregnancies attributable to the failure of the method of contraception.

Cost data:
The economic analysis included the costs of staff (doctors and nurses), equipment, drugs (contraception and any additional drugs for side effects), pregnancy, and several other outcomes including termination of pregnancy, ectopic pregnancy, miscarriage, or full-term delivery. The resource use data were derived from the clinical database. The costs
of outcomes were derived from National Institute for Health and Clinical Excellence (NICE)’s official tariffs. Other costs were derived from a previous analysis. The price year was not clearly reported and all costs were in UK pounds sterling (£).

Analysis of uncertainty:
A probabilistic sensitivity analysis was undertaken to generate cost-effectiveness acceptability curves. No other details were provided.

Results
The number of pregnancies attributable to the failure of the method was none in the LARC group and 43 in the oral group.

The yearly cost per patient over the three-year period was £50.30 in the LARC group and £83.02 in the oral group. Stratified by year, the cost per patient was £177.56 in year one, £70.90 in year two, and £47.21 in year three for the LARC group and £356.88 in year one, £199.30 in year two, and £50.72 in year three for the oral group.

Cost-effectiveness ratios were not calculated in view of the dominance of LARC over oral contraception, which was simultaneously more expensive and less effective.

The probabilistic sensitivity analysis indicated that there was a high probability that the cost per pregnancy avoided with LARC was very low, supporting the cost-effectiveness of this contraceptive approach.

Authors’ conclusions
The authors concluded that LARC was a cost-effective alternative to oral contraception from the perspective of the Welsh NHS.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear and appropriate. Implanon was ranked as the most cost-effective LARC method in a recent NICE study and was compared with oral contraceptives.

Effectiveness/benefits:
The authors justified their selection of the study design, which was chosen to reflect everyday clinical practice. Thus, the data reflected the real-world pattern of care in the authors' setting. The main drawback of this approach is that the retrospective use of an administrative database often does not provide the data appropriate to the objective of the study. Thus, some assumptions were required, which reduces the validity of the clinical findings. Despite matching the two samples, there were some differences in the clinical histories of the women. The benefit measure was the natural outcome of the contraceptive methods and was specific to these interventions. Therefore, it cannot be compared with the benefits of other health care strategies.

Costs:
The analysis of costs was consistent with the perspective of the Welsh NHS. The categories of costs were reported. Most of the economic data were derived from a previous analysis and the cost estimates were updated only for a few items. Thus, little information on the derivation of some cost estimates was provided. The price year was not reported and discounting would have been useful given the relatively long time frame of the analysis. The costs were treated deterministically and the impact of variations in individual items was not assessed.

Analysis and results:
The costs and benefits were not synthesised, but the more favourable clinical and economic outcomes showed the superior profile of the LARC. The issue of uncertainty was appropriately investigated using a probabilistic approach, but the methodology was not described. The authors stated that since the oral contraception group included both ongoing and new users, these might be more compliant and satisfied than a group of new users only. If this were the case, the results for the oral strategy would have been less cost-effective. The authors acknowledged some drawbacks of their study, mainly related to the source of clinical data.
Concluding remarks:
The study had some methodological limitations which might affect the validity of the authors' conclusions.

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