



Title	Implantable Contraceptives (subdermal implants and hormonally impregnated intrauterine systems) Vs Other Forms of Reversible Contraceptives: Two Systematic Reviews to Assess Relative Effectiveness, Acceptability, Tolerability and Cost Effectiveness
Agency	NCCHTA, National Coordinating Centre for Health Technology Assessment Mailpoint 728, Boldrewood, University of Southampton, Southampton SO16 7PX, United Kingdom
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Aim

To assess the contraceptive efficacy, tolerability, and acceptability of subdermal implants and hormonally impregnated intrauterine systems (IUSs) in comparison with other reversible contraceptive methods and to use these data to determine the relative cost effectiveness.

Conclusions and results

- *Subdermal implants:* Thirty-four comparative studies met the inclusion criteria. Most studies were comparisons of different types of implant, but with a broader range of comparisons in the nonrandomized controlled trials (non-RCTs). In many of the non-RCT studies the intervention groups were often dissimilar at baseline. It was possible to combine data from only a few studies as it was deemed inappropriate to use data from investigations of prototypes. For Norplant, the most common comparison was with other types of subdermal implant, followed by comparisons with intrauterine devices (IUDs). There was no significant difference in pregnancy rates among users of Norplant compared to users of other contraceptive methods. There was no evidence of differences between Norplant users and users of other contraceptive methods in relation to planned pregnancy following removal, hormonal side effects, or adverse clinical events. Norplant users were 90% less likely to discontinue for menstrual reasons compared to women having DMPA injections. The only other significant difference observed was that Norplant users were less likely than pill users to discontinue the method for personal reasons.
- *Hormonally impregnated IUSs:* Twenty-nine intervention studies with IUSs met the inclusion criteria. With one exception, all were comparisons between different types of IUS or between IUSs and IUDs. It was possible to pool data from only a few studies. In terms of unplanned pregnancy, there was no evidence that levonorgestrel (LNG)-20 IUS users differed from users of copper IUDs (surface area > 250 mm³). Rate ratios calculated in the comparison of the LNG-20 IUS with copper IUDs < 250 mm³ showed that LNG-20 IUS users were significantly less likely to have either intrauterine or extrauterine pregnancies. There was insufficient evidence from the comparative studies in these systematic reviews to suggest that one type of subdermal implant was any more or less effective in preventing pregnancy than another, that implants were any more or less effective than the other methods with which they were compared, or that the LNG-20 IUS was any more or less effective than IUDs > 250 mm³. LNG-20 IUS users were significantly less likely to experience intrauterine or extrauterine pregnancies than IUD < 250 mm³ users. Women using the LNG-20 IUS were more likely to experience amenorrhea, and this event was a notable reason for discontinuing IUSs.
- *Cost effectiveness analysis:* Generally, the cost-effectiveness ratios for subdermal implants and IUSs, calculated from the results of the meta-analysis, were quite high, indicating that they were on balance more costly per pregnancy averted than the contraceptive methods with which they were compared.

Recommendations

Poor study design, lack of clarity in measuring contraceptive effectiveness, and heterogeneity between studies hindered synthesis of data. It is recommended that standardization of methods and measurements used in contraceptive research should be encouraged, with consumer involvement in the development of contraceptive research to identify



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user-related questions. Evaluation should be carried out to determine the most effective training for healthcare workers in the insertion and removal of implantable contraceptives. Economic endpoints should be included in primary research on methods of contraception.

Methods

Literature was identified through electronic database searches, reference lists, and by contacting individuals/organizations working in the field. All prospective intervention studies that compared subdermal implants or IUSs with other forms of reversible contraceptives and reported predetermined outcomes in women of reproductive years were included.

Further research/reviews required

An RCT is required to assess the impact of counseling on discontinuation rates of subdermal implants and IUSs, particularly in relation to the effect of amenorrhea.