EFFECTIVENESS AND COST EFFECTIVENESS OF LONGER ACTING REVERSIBLE CONTRACEPTION (LARC)

Purpose

1. This paper briefly summarises the effectiveness and cost effectiveness of LARC for the information of the National Planning Forum. It sets out the evidence, the policy and the key issues concerning service provision and uptake in Scotland.

2. The promotion of the consistent use of condoms should be continued to prevent the transmission of sexually transmitted infections (STIs).

Background

3. It is estimated that about 30% of all pregnancies are unplanned\(^1\). The teenage pregnancy rate in 2009, at 55.7 pregnancies per 1,000 women aged 15-19 is slightly lower than that for England and Wales, but higher than most other Western European countries. There continues to be a strong association between deprivation and rates of teenage pregnancy: the most deprived groups have approximately ten times the rate of delivery as the least deprived (67.3 per 1,000 and 7.2 per 1,000). The rate of terminations for women aged 15-44 in 2009 was 12.4 for every 1,000 women, with rates nearly double in areas of high deprivation (8.8 per 1,000 in the least deprived areas compared to 16.7 per 1,000 in the most deprived).

4. Respect and Responsibility: Strategy and Action Plan for Improving Sexual Health in Scotland, published in 2005, states that the full range of contraceptive methods should be available to all patients. The ‘long acting’ or ‘lasting’ methods of contraception have a lower failure rate than alternative reversible methods, e.g. the contraceptive pill or condoms. The NICE guideline National Cost-Impact Report on LARC\(^2\) for England and Wales published in December 2005 suggested that increased uptake of LARC methods would reduce unintended pregnancy and be cost-effective for the NHS. The findings are equally pertinent for Scotland.

Methods of LARC and effectiveness

5. There are currently 4 LARC methods available in the UK:

- The contraceptive implant called Implanon; a small flexible tube containing progestogen which is inserted under the skin of the upper arm by a trained professional and which lasts for 3 years. It is more than 99.9% effective.

- The Intrauterine device (IUD) (previously known as the ‘coil’); a small T-shaped plastic and copper device that is inserted into the womb by a trained health professional. Depending on the type, an IUD can last from 3-10 years. It is more than 99% effective.

- The Intrauterine system (IUS) (brand name in the UK is Mirena): a small T-shaped plastic device that contains progestogen which is inserted into the womb by a trained health professional. It lasts for 5 years.

- The contraceptive injection containing progestogen. There are two types: Depo-Provera, which lasts for 12 weeks and Norsterat, which lasts for 8 weeks.

---

\(^1\) NICE Guideline: Longer Acting Reversible Contraception: October 2005

\(^2\) National cost-impact report: Implementing the NICE clinical guideline on long-acting reversible contraception: December 2005
6. Whilst the combined pill (a tablet that contains the hormones oestrogen and progestogen) can also be more than 99% effective, it requires the user to remember to take the pill every day for 21 days, then stop for seven days, then start taking the pill again. It can also be less effective if the pill isn’t taken according to the instructions or if other medications are taken. As it contains oestrogen it is contraindicated in some groups of women e.g. smokers over the age of 35, due to the increased thrombosis risk. There are very few contraindications to the progestogen containing LARC.

Use of LARC in Scotland

7. The use of LARC is a Key Clinical Indicator for sexual health services in Scotland. LARC is prescribed in a variety of settings throughout Scotland. New uptake data are collected on contraception provision in all of these centres, but are not currently collated and reported nationally. The full implementation of NASH (National Sexual Health System), an electronic patient record for specialist sexual health services in Scotland should provide aggregate national information on clinical activity in due course, including the usage of all types of contraception. Currently the data reported nationally each year by ISD is collated from Community Prescribing (primary care) and central pharmacies. Data are based on the proportion of women that started on a particular LARC method in that year.

8. This data is used to monitor NHS Boards’ performance against relevant QIS standards, i.e. Essential – 60 or more females per 1,000 females of reproductive age per year are prescribed intrauterine and implantable contraceptives; Desirable – 100 or more per 1000 females of reproductive age per year are prescribed intrauterine and implantable contraceptives by the end of 2011.

9. In 2009/10, the uptake of very long acting methods (Implanon, IUDs and IUS (Mirena)) increased from 46.9 per 1000 women aged 15-49 in 2008/09 to 56.7. However, this uptake is still relatively low.

10. NHS QIS standards indicate that a desirable rate which can be achieved is 100 per 1000 women aged between 15-49 with an essential target of 60 per 1000 women aged between 15-49. NHS QIS are currently reviewing NHS Board compliance with this standard. ISD statistics (Figure 1) indicates that 5 boards out of 14 achieved the essential standards. There is also significant variation in attainment of the targets.
11. It is estimated that every £1 invested in contraception, in general, saves the NHS £11, plus additional welfare costs.3

12. NICE Guideline no. 30, issued in December 2005, is a national cost-impact report on implementing the NICE clinical guideline on LARC. It concluded that use of LARC methods result in greatest cost-savings compared to other forms of contraception. Among the four LARC methods, the injectable is less cost effective than the IUD, IUS and implant, with the latter (IUD, IUS and implant) becoming more cost effective with longer duration of use. For England, the net saving from increased use of LARC came to £-102.3 million. This takes into account additional costs of switching from oral contraception to LARC of £12.7 million and savings from unplanned pregnancies avoided of £115.0 million. These savings were based on the assumption that the total number using LARC methods or the contraceptive pill would remain static at 34% of 15-49 year olds, with a swing from oral contraception to LARC of 8%. An economic model developed in the US showed an even greater cost saving when women using other less reliable methods, or no methods at all, also chose LARC. If improvements in service access enabled unmet demand to be addressed and further increased the numbers choosing LARC, then savings could be even greater than those estimated in the report.

---

13. A further study was undertaken in 2008: The cost-effectiveness of long-acting reversible contraceptive methods in the UK: analysis based on a decision-analytic model developed for a NICE clinical practice guideline. A decision-analytic model was constructed to estimate the relative cost-effectiveness of the IUD, levonorgestrel intrauterine system (LNG-IUS), the etonogestrel subdermal implant and the depot medroxyprogesterone acetate injection (DMP). Comparisons with the combined oral contraceptive pill (COC) and female sterilization were also performed. Effectiveness data were derived from a systematic literature review. Costs were based on UK national sources and expert opinion.

14. LARC methods dominated COC, i.e. they were more effective and less costly. Female sterilization dominated LARC methods beyond 5 years of contraceptive protection. DMPA and IUS were the least cost-effective LARC methods. The incremental cost-effectiveness ratio of implant (most effective LARC method) versus IUD (cheapest LARC) method was £13,206 per unintended pregnancy averted for 1 year of use and decreased until implant dominated IUD in 15 years. Discontinuation was a key determinant of the cost-effectiveness of LARC methods. The conclusions reached were that LARC methods are cost-effective from the British NHS perspective. Practices improving user satisfaction and continuation of LARC method use should be identified and promoted.

15. The NHS Economic Evaluation Database (NHS EED) also examined the cost-effectiveness of LARC (namely Implanon) in comparison with oral contraception in women aged 13-48 years in a community setting. The authors concluded that LARC was a cost-effective alternative to oral contraception from the perspective of the Welsh NHS, although the study had some methodological limitations.

The promotion of LARC in Scotland

16. In 2009, a Scottish Government campaign was undertaken to raise awareness of the contraceptive choices available to women. It sought, in particular, to raise knowledge and awareness of longer-lasting contraception among women aged 18-49 and professionals and to increase the number of women using longer lasting contraception. Post campaign research indicated increased knowledge amongst women and increased consideration of use.

17. The refreshed Framework for Maternity Care in Scotland, published on 18th January 2011 includes improved provision of contraceptive advice and contraception prior to discharge from postnatal care as a key quality indicator of service. Short/medium-term outcomes include an increase in the number of women using LARC and long term outcomes include reduced unintended pregnancies and terminations, particularly amongst teenagers and women at risk of poorer sexual health outcomes.

18. Performance measures on the promotion and, where relevant, the provision of LARC in maternity and termination services have been developed as part of plans for an extended suite of Health Promoting Health Service (HPHS) performance measures. The intention is to embed the revised HPHS measures within one of the

---

4 Mavranezouli on behalf of the LARC Guideline Development Group. Published by Oxford University Press on behalf of the European Society of Human Reproduction and Embryology.
5 The cost effectiveness of a long-acting contraceptive (Implanon) relative to oral contraception in a community setting. Lipetz C, Phillips CJ, Fleming CF.
strands of the Quality Strategy. In addition, as part of a new Sexual Health and BBV Strategic Framework which is currently being developed, NHS Boards will be required to increase the uptake of LARC, particularly amongst vulnerable young women and those most at risk of poor sexual health outcomes.

19. On Thursday, 03 February 2011, there was a telephone conference with SGHD representatives, NHS Boards representatives and the manager for the west of Scotland Sexual Health Network to explore some of the key issues concerning LARC. These can be divided onto:

- Models of service in primary care, sexual health clinics and maternity services to promote uptake and use
- Service and device costs

Paragraphs 20-22 outline the key areas of discussion.

20. Advice on LARC is provided in a range of settings and these include primary care, specialist sexual health services and in maternity and termination of pregnancy services. Many NHS Boards have implemented locally enhanced service payments and, in 7 Boards who were surveyed, the level of payment varied considerably from £165 to £56. In addition, there were issues of the costs of training in primary care to the required competency level.

**Comparison of costs across NHS Board areas**

<table>
<thead>
<tr>
<th></th>
<th>IUCD/IUD Insertion</th>
<th>IUCD/IUD Removal</th>
<th>LARC Insertion</th>
<th>LARC Removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argyll &amp; Bute</td>
<td>£79.92</td>
<td>No payment</td>
<td>£85.24 (paid through Minor Surgery budget – subject to capping)</td>
<td>£85.24 (paid through Minor Surgery budget – subject to capping)</td>
</tr>
<tr>
<td>Ayrshire/Arran</td>
<td></td>
<td>£25.81/procedure</td>
<td></td>
<td>£30.79/procedure</td>
</tr>
<tr>
<td>Borders</td>
<td>£79.92</td>
<td>No payment</td>
<td>£42.62 (minor surgery only – budget capped)</td>
<td>£85.24 (minor surgery only – budget capped)</td>
</tr>
<tr>
<td>Dumfries/Galloway</td>
<td>£79.41</td>
<td>£21.68</td>
<td>£80.00</td>
<td>£80.00</td>
</tr>
<tr>
<td>Fife</td>
<td>£78.74</td>
<td>£78.74</td>
<td>£78.74</td>
<td>£78.74</td>
</tr>
<tr>
<td>Forth Valley</td>
<td>£79.92</td>
<td>6 week check and annual review £21.31</td>
<td>£79.92</td>
<td>£85.16</td>
</tr>
<tr>
<td>Grampian</td>
<td>£135.00</td>
<td>No payment</td>
<td>£82.58</td>
<td>£82.58</td>
</tr>
<tr>
<td>Gtr Glasgow/Clyde</td>
<td>£79.92</td>
<td>No payment</td>
<td>£25.81</td>
<td>£51.61</td>
</tr>
<tr>
<td>Highland</td>
<td></td>
<td></td>
<td>£42.62</td>
<td>£77.12</td>
</tr>
<tr>
<td>Lanarkshire</td>
<td>£77.42 in 2010/11 – no funding for 2011/12 – service will be delivered by sexual health</td>
<td>£20.65 in 2010/11 – no funding for 2011/12 – service will be delivered by sexual health</td>
<td>£42.62</td>
<td>£77.12</td>
</tr>
<tr>
<td>Lothian</td>
<td>£81.52</td>
<td>No payment</td>
<td>£44.87</td>
<td>£89.74</td>
</tr>
<tr>
<td>Orkney</td>
<td>£120.00</td>
<td>£50.00</td>
<td>£40.00</td>
<td>£40.00</td>
</tr>
<tr>
<td>Shetland</td>
<td>No payment but GPs participate in providing service</td>
<td>No payment but GPs participate in providing service</td>
<td>No payment but GPs participate in providing service</td>
<td>No payment but GPs participate in providing service</td>
</tr>
<tr>
<td>Tayside</td>
<td>£79.72</td>
<td>£21.31</td>
<td>£79.92</td>
<td>£85.24</td>
</tr>
<tr>
<td>Western Isles</td>
<td>£79.48</td>
<td>No payment</td>
<td>£25.81</td>
<td>£51.61</td>
</tr>
</tbody>
</table>
21. There was also some debate about the need to target LARC advice and expertise in particular areas, including maternity and termination of pregnancy services, and to target vulnerable women with risk of poorer sexual health outcomes. There was also discussion about patients presenting for removal of the devices.

22. There were questions concerning the West of Scotland work on the cost of the devices, which have remained relatively high, and the need to explore ways of getting better value for the NHS when purchasing the devices.

23. This paper has highlighted a range of areas for consideration. In summary:
   - LARC is an extremely cost effective intervention which will also improve the quality of care provided by the NHS;
   - There is significant variation in the rates per 1000 women of use of LARC;
   - There is significant variation in the cost and possibly the efficiency of different service models across Scotland;
   - This area is an important public health issue as well as a policy imperative.

February 2011