Nexplanon®: what Implanon® did next

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Introduction

Etonogestrel (ENG) contraceptive subdermal implants [Implanon[®], Schering-Plough Limited/Merck Sharp & Dohme Limited (MSD), UK] have been available for more than 10 years in the UK. Over 180 000 implants are now fitted each year, with approximately 6 million women using this method worldwide (MSD, data on file, July 2010). The Department of Health¹ and National Institute for Health and Clinical Excellence (NICE)² have encouraged use of the ENG implant by providing additional funds to improve access to contraceptive methods through primary care trust and strategic health authority initiatives along with providing clear, concise information in a clinical guideline published in October 2005.²

Why change Implanon?

Despite the success of Implanon, there have been a few issues that have raised concern. First, post-marketing surveillance studies³ identified that about 50% of unplanned pregnancies associated with the ENG implant were related to 'non-insertion' of the contraceptive implant. The manufacturer's quality control procedures are extremely good and I am unaware of any health care professional reporting 'absence of the implant' in the inserter needle when checked prior to insertion. It is likely that non-insertion results from a faulty insertion technique⁴ or expulsion/removal by the woman.^{5,6} Deep insertion of the implant has also been reported and is thought to occur in approximately 1 per 1000 fittings (MSD, data on file, July 2010). Those women with 'non-palpable implants' frequently have to travel to regional centres for specialist high-frequency ultrasound imaging and removal.⁷⁻⁹ Localisation would certainly be quicker and easier if the implant was 'radio-opaque'; reducing the delay would also reduce women's anxiety. Finally, it would be advantageous if the fitting technique minimised the possibility of incorrect or deep insertions.

Nexplanon®

Nexplanon[®] contains 68 mg etonogestrel with 3% barium sulphate [37% ethylene vinyl acetate (EVA) copolymer; 3% barium sulphate (15 mg); 60% ENG (68 mg)]. The implant is the same colour, has the same flexibility and overall dimensions as Implanon. Recent bioequivalent studies have reassuringly shown no effect of adding 15 mg barium sulphate to the implant core (MSD, data on file, July 2010). There is a rumour circulating that Nexplanon will 'glow in the dark' under ultraviolet light: this is a myth. However, Nexplanon can be detected by

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Figure 1 X-ray image showing a correctly positioned radio-opaque etonogestrel contraceptive implant (Nexplanon®). Photograph $@\,MSD$ and reproduced with their permission

conventional X-ray imaging, thereby reducing unnecessary referrals to 'deep implant removal' centres when non-insertion has occurred (Figure 1).

The new applicator

The new applicator for inserting the ENG implant (Figure 2) was designed to facilitate insertion of the implant subdermally in a one-handed action. As a protective mechanism, the applicator is rendered unusable if no implant is present in the needle of the applicator because the protective cap over the needle cannot be removed. If this was to happen in practice the applicator should be returned to the manufacturer. The new applicator holds the implant in the needle and the implant is only released when the lever is pushed upward during insertion of the needle



Figure 2 Nexplanon[®] applicator. Photograph © MSD and reproduced with their permission

into the woman's arm. After complete insertion of the needle under the skin, the needle is fully retracted into the body of the applicator, which reduces the risk of an accidental needlestick injury after implant insertion.

New insertion technique

The insertion site and initial insertion procedure for Nexplanon remains the same as for Implanon. The woman lies on her back with her non-dominant arm turned outwards and bent at the elbow. The insertion site is identified and marked (8–10 cm above the medial epicondyle of the humerus on the inner side of the non-dominant arm).¹⁰ This area is cleansed and local anaesthetic injected.¹⁰

It is now advised that the health care professional sits to perform the insertion of Nexplanon to allow direct vision of the needle tip as it punctures the skin and to monitor its advancement during insertion. The new inserter applicator is held just above the needle over the textured surface and the transparent protection cap covering the needle is removed. The implant can be seen by looking down the needle tip. Once the anaesthetised skin has been punctured with the tip of the needle, angled at about 30°, the applicator is lowered to a horizontal position. Whilst tenting the skin with the needle, it is advanced to its full length. The applicator should remain in this position and the purple slider unlocked by pushing it slightly down. The slider is pushed fully back until it stops, leaving the implant in its subdermal position and the needle safely locked inside the body of the applicator. The applicator can now be removed. Both ends of the implant should be palpated by the health care professional and the woman. This should then be carefully documented in the clinical record (MSD, data on file, July 2010).

Transition from Implanon to Nexplanon

The manufacturer, MSD, received approval for Implanon NXT[®] (the European approved name for etonogestrel 68 mg with 3% barium sulphate) by the European Medicines Agency on 8 April 2010. Approval by the Medicines and Healthcare products Regulatory Agency (MHRA) in the UK followed in June 2010. Nexplanon has been given a 'black triangle' by the MHRA – probably because barium sulphate has been added to the implant. This may worry some area prescribing committees and pharmacy advisors who help develop patient group directions (PGD) for allied health professionals. It should be remembered, however, that 'black triangle' drugs can be named on PGDs as long as no other licensed products are available for the purpose, and use of this medicine is likely to offer a significant clinical/pharmaceutical advantage compared with other licensed products.¹¹ The manufacturer is planning a rapid changeover in supply

from Implanon to Nexplanon in the last quarter of 2010 so it is important that all health care professionals who fit Implanon undertake the necessary additional training.

MSD is working closely with the Faculty of Sexual and Reproductive Healthcare (FSRH), specialist sexual health centres, recognised trainers and fitters to ensure that the transition to Nexplanon occurs with minimal disruption to services (Figure 3). The FSRH's e-learning package¹² will be updated to provide information about Nexplanon in due course.

It is advised that health professionals who wish to become new contraceptive implant fitters and those part way through their training delay practical training until Nexplanon is launched. Health care professionals holding an up-to-date Letter of Competence in Subdermal Contraceptive Implant Techniques (LoC SDI) or equivalent can undertake the e-learning package available at www.nexplanon.co.uk/training and do not necessarily have to attend a model arm workshop. However, many health care professionals want to practise handling the new applicator and have signed up to attend workshops around the UK. Unfortunately the Nexplanon placebo applicators are single-use so training centres will need to liaise with the manufacturer to ensure they have sufficient stock.

A number of clinicians have voiced their concerns about the availability of Nexplanon placebo applicators. Initially the manufacturer stated that only two placebos would be supplied to each clinician but they have now promised to provide sufficient quantities until the health care professional is competent. We are all aware that providing training materials can be costly but the company





should explore the development of a multi-use placebo. Anecdotally, several clinicians have taken the placebo apart and 'adapted it' for multi-use. I would not advise this, as it potentially increases the risk of a needlestick injury. A much better option is to insert the Nexplanon placebo needle into a model arm and check the needle's position by 'unwrapping the skin' before releasing the implant. This can be undertaken a number of times until the trainee is competent.

Ultimately, I am sceptical that any 'new inserter' will prevent all deep insertions, particularly when some women presenting with impalpable implants tell me they have asked their doctor/nurse to fit the implant more deeply so it could not be seen. I can hear cries of "we love the old inserter, don't change it", "the old inserter is easy to use" and "we have had no problems with non-insertion or deeply placed implants". None of us like change but there are positive advantages to the Nexplanon applicator. Newcastle Sexual Health Service was involved in the multinational trial investigating Nexplanon and its new inserter. Our senior nurse took part and found the new inserter easy to use. She thought the single-handed insertion technique was an advantage as it would aid practical training. Having now undergone Nexplanon training myself, I fully support her views.

For further information on Nexplanon visit the website at www.nexplanon.co.uk/training, phone MSD on 0844 556 1444, contact the manufacturer in writing at Merck Sharp & Dohme Limited. Hertford Road, Hoddesdon, Hertfordshire EN11 9BU or alternatively contact your local MSD representative.

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Editor's note

Interested readers should also see the articles on a risk management approach to the design of contraceptive implants (page 191) by Rowlands *et al.* and Sam Rowlands' Legal Opinion article about contraceptive implants (page 243) in this issue of the Journal.

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BOOK REVIEWS

Clinical Obstetrics and Gynaecology (2nd edn). Brian Magowan. Oxford, UK: Saunders (Elsevier), 2009. ISBN-13: 978-0-70203-069-7. Price: £37.99. Pages: 432 (paperback)

This is the second edition of this book, which is a general obstetrics and gynaecology (O&G) text aimed at medical students, junior O&G trainees and general practitioner (GP) trainees, nurses and midwives. Students used to finding their way around Kumar and Clark's Clinical Medicine will recognise a reassuringly familiar layout to the pages, as it comes from the same publishers and shares the same colourful and easy-to-read format. The 400-page book is split into three sections, covering the 'Fundamentals', and then 'Gynaecology' and 'Pregnancy and the Puerperium'. The fundamentals section is a great feature, providing a refresher of the relevant areas of anatomy and embryology and a succinct guide to history and examination. The other two sections are split up into small chapters, with often-neglected topics such as prenatal diagnosis and sexual problems receiving attention as well as comprehensive coverage of all the main topics. Particularly good are the chapters on endometriosis and gynaecological neoplasia, which cover these areas in a straightforward and accessible way.

The book is up-to-date and factually accurate and on the whole presents a greater degree of detail than many similar books on the market. This makes for a lengthier text, which might not suit all readers, but means the book works well as a reference tool, as well as a revision aid. The use of photographs, diagrams and summary boxes make this a very enjoyable book to look at and read, and I also really liked the 'History' boxes, which introduce little nuggets of medical history. Overall, this book is a great choice for undergraduates and trainees studying O&G who wish to get a thorough grounding in the subject, but also have the opportunity to study the topic in a bit more depth.

Reviewed by **Ellie Golightly**, MBChB, MRCOG Clinical Research Fellow, Reproductive and Development Sciences, University of Edinburgh, Edinburgh, UK

Abortion: The Essential Guide. Johanna Payton. Peterborough, UK: Need-2-Know, 2009. ISBN-13: 978-1-86144-062-4. Price: £8.99. Pages: 136 (paperback)

This book is part of a series of self-help books aimed at a non-medical audience. There is a comprehensive review of all issues that a woman considering an abortion would need to know. It is evidently written by someone who has considerable experience of working in the NHS and with abortion providers. The information presented is accurate with respect to the legal aspects and common practice undertaken within clinics and by well-known abortion charity providers. The book covers the ethics of having an abortion, the law, different methods of abortion in detail, including possible complications.

In terms of the psychological aspects, it could be likened to a workbook that someone thinking about having an abortion could go through. It is full of practical advice about things to anticipate and consider. Once the decision to have an abortion has been made, several chapters guide the client through the process of how to attend, who to take along, what precautions to take during and after the procedure, and so on.

The book is easy to read and in a style that is chatty but considerate. The only comment that I would make about the accuracy is that the complication rate is lower than I normally quote. Also, the book does not emphasise how quickly you can conceive after having an abortion and how imperative it is to start contraception immediately. The chapters that are related to the methods of termination are repetitive. It does, however, mean that someone undergoing a specific type of abortion only needs to read one chapter to assimilate everything they need to know.

I think this is a very useful book, which I would recommend to patients and non-medically qualified people as well as clinically qualified staff without prior knowledge of the issues and processes involved in abortion.

Reviewed by **Louise Massey**, FFSRH, FFPH Consultant in Public Health, Wolverhampton City Primary Care Trust, Wolverhampton, UK