INTRODUCTION

It is estimated that 40% of pregnancies that occur globally are unplanned. In Ireland the term “crisis pregnancy” refers to pregnancies that are unintended and unplanned and that represent a personal trauma for the woman or couple involved; a study from 2010 found that 35% of Irish women surveyed had experienced a crisis pregnancy. In addition to increased maternal mortality, unplanned pregnancy may also be associated with risks including increased incidence of poor prenatal care, preterm delivery and low birth weight. These risks are associated in particular with 1) pregnancies occurring in those aged <18 years and >34 years, 2) high parities, 3) short pregnancy intervals and 4) those that result in unsafe abortion. An Irish study found that women whose first pregnancy was unplanned were at increased risk of subsequent unplanned pregnancies. Over the last 50 years contraception has been part of clinical practice globally; it is estimated that each year family planning programmes prevent 187 million unplanned pregnancies. However, despite that, approximately half of unplanned pregnancies result from not using contraception, and the remainder from contraceptive failure, usually due to incorrect/inconsistent use of contraception. Reasons for not using contraception include fear of side effects, ambivalence towards pregnancy, health concerns, lack of access to contraceptives and cultural barriers. An Irish study of 18-25 year olds found that 90% of participants used some form of contraception when having sexual intercourse for the first time; risk factors for not using contraception the first time included lower socioeconomic groups, age <17 years and not having sex education.

This bulletin outlines some of the various methods of contraception currently used in practice in Ireland and updates previous NMIC bulletins on hormonal contraception (NMIC 2010;16:4 and 5).

METHODS OF CONTRACEPTION

Contraceptive options include: 1) short-acting methods such as combined hormonal contraception (CHC) including the combined oral contraceptive pill, the transdermal patch and the vaginal ring, and the progesterone only pill (POP), and 2) long-acting reversible contraception (LARC) including the copper-bearing intra-uterine devices, the two levonorgestrel intra-uterine systems, the progestogen-only implant and the progestogen-only injection. In addition, emergency contraception is available for women who have had unprotected sexual intercourse. The choice of a contraceptive method depends on the effectiveness of the method and individual personal circumstances including co-morbidities, concomitant medications and preferences of the user. It is important that women requiring contraception should be given information and offered a choice of all methods available. Women may not be aware of the effectiveness of the contraceptive method they are using. Even though it is widely known that correct and consistent use of effective contraceptive methods greatly reduces the likelihood of unplanned pregnancy, many people fail to adhere to a regular contraceptive routine.

SHORT-ACTING CONTRACEPTION

In many countries, oral contraception is the most commonly used hormonal contraceptive method. Globally, the proportion of women using oral contraception has decreased while the numbers using LARC have increased in recent years, although the proportion of LARC users remains small. Short-acting contraceptive methods are more user dependent in terms of adherence and are associated with lower continuation rates and higher pregnancy rates than LARC. The efficacy of the oral contraceptive method is highly dependent on good adherence; many studies have highlighted that adherence to oral contraception is a concern. An Irish study of young oral contraceptive users (17-36 years) found that 52% of participants reported missing their pill at least once per month and 14% at least twice per month. The failure rate (defined as the percentage (%) of women experiencing an unintended pregnancy within the first year of use) of short-acting contraceptives is estimated to be 0.3% with perfect use compared with 9% with typical use. The annual failure rates (typical use) are increased for teenagers (13%), which perhaps reflects lower adherence in this age group. Up to 67% of women continue to use short-acting contraceptives at the end of the first year of usage.

Combined Hormonal Contraception

As described in a previous bulletin on hormonal contraception (Vol 16, Number 4, 2010), CHC is widely used and suitable for the majority of women who have no contra-indications to its use. There are some medical conditions and lifestyle factors where the risks of CHC outweigh the benefits. Table 1 summarises the contra-indications and special precautions associated with use of CHC; the Summary of Product Characteristics (SmPC) of the individual CHC should be consulted for full prescribing information.
Special precautions include:*  
Use with caution in women with cardiovascular disease risk factors
Efficacy reduced when used with enzyme-inducing drugs – alternative contraceptive method recommended
Possible efficacy reduction when used with ulipristal acetate – additional contraceptive precautions required
Possible efficacy reduction of other drugs when used with CHC e.g. lamotrigine

Contra-indications include:*  
- Presence of or suspected carcinoma of the breast
- Carcinoma of the endometrium or other known/suspected estrogen-dependent tumour
- Current or history of severe hepatic disease
- Presence or history of liver tumours
- Known or suspected pregnancy

Table 2: Risk of venous thromboembolism with combined hormonal contraception

<table>
<thead>
<tr>
<th>Combined Hormonal Contraception (CHC)</th>
<th>Venous Thromboembolism Risk (per 10,000 women per year of use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women using CHC containing levonorgestrel, norethisterone or norgestimate</td>
<td>5 - 7</td>
</tr>
<tr>
<td>Women using CHC containing etonogestrel or norelgestromin</td>
<td>6 - 12</td>
</tr>
<tr>
<td>Women using CHC containing drospirenone, gestodene or desogestrel</td>
<td>9 - 12</td>
</tr>
<tr>
<td>Women using CHC containing dienogest or nomegestrel</td>
<td>Not yet known (Studies ongoing)</td>
</tr>
<tr>
<td>Non-pregnant women not using CHC</td>
<td>2</td>
</tr>
<tr>
<td>Pregnant woman</td>
<td>29</td>
</tr>
</tbody>
</table>

Progestogen-only Oral Contraception

There are two progestogen-only pills (POPs) currently available in Ireland; norethisterone and desogestrel. These POPs primarily act by altering cervical mucous and preventing sperm penetration. However, POPs may also inhibit ovulation, particularly in older women; studies suggest that desogestrel inhibits ovulation in 97% of women. POPs represent an oral contraceptive option for women, including those with contra-indications to CHC. Current evidence suggests that progestogen-only methods of contraception do not appear to be associated with an increased risk of VTE. Users of POPs, similar to those seen with other progestogen-only contraceptive methods, may experience altered bleeding patterns including irregular bleeding and oligomenorrhea, although these may resolve with long-term use.

*refer to Summary of Product Characteristics for full prescribing information
LONG-ACTING REVERSIBLE CONTRACEPTION

Long-acting reversible contraception (LARC) includes copper-bearing intra-uterine devices (Cu-IUDs), levonorgestrel intra-uterine systems (LNG-IUS), the progestogen-only implant and the progestogen-only injectable. 

LARC methods of contraception have been shown to be acceptable to women (including young women), are not user dependent, have lower failure rates and higher continuation rates than the shorter-acting methods. 

UK guidelines state that increasing the uptake of LARC methods will reduce the numbers of unplanned pregnancies. 

Barriers to the use of LARC include a lack of information about the methods, limited access and limited resources. 

A large study that removed costs and other common barriers to the use of LARC methods found that two thirds of patients chose LARC methods. 

Healthcare professionals (HCPs) require appropriate training and experience in the insertion of Cu-IUDs, LNG-IUS and progestogen-only implants. Analgesia may be used prior to IUD insertion; while used in practice there is little evidence to support the use of misoprostol prior to insertion of IUDs. 

Table 3 summarises the types of LARC currently available in Ireland.

<table>
<thead>
<tr>
<th>Type of LARC method (Mode of action)</th>
<th>Duration of use</th>
<th>Effects on menstrual cycle (Use at 1 year)</th>
<th>Risks/Precautions with use include**: (Other comments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper bearing intra-uterine device (primarily by inhibiting fertilisation and also inhibits implantation)</td>
<td>5-10 years depending on type of device (Typical Use: 0.8%; Perfect Use: 0.6%)</td>
<td>Heavier bleeding +/- dysmenorrhoea (78% of women continue use at 1 year)</td>
<td>50% discontinue IUD within 5 years: commonly due to bleeding and pain. Expulsion &lt; 1 in 20 women in 5 years. Ectopic rate in women who become pregnant is 1 in 20. PID: &lt;1% in women at low risk of STI. Uterine perforation &lt;1 in 1000. (No evidence of weight gain or delay in return to fertility)</td>
</tr>
<tr>
<td>Levonorgestrel intra-uterine system a) LNG 52mg b) LNG 13.5mg (prevents fertilisation and endometrial suppression)</td>
<td>a) 5 years b) 3 years (Typical Use: 0.2%; Perfect Use: 0.2%)</td>
<td>Irregular bleeding and spotting common in first 6 months. Oligomenorrhoea or amenorrhoea likely by end of first year (80-92% of women continue use at 1 year)</td>
<td>35-60% discontinue IUS within 5 years: commonly due to bleeding and pain. Expulsion &lt; 1 in 20 women in 5 years. Increased risk of ectopic pregnancy in women who become pregnant**. PID: &lt;1% in women at low risk of STI. Uterine perforation &lt;1 in 1000. Increased risk of ovarian cysts in 35-60% of women. Change in mood or libido, acne (No evidence of weight gain or delay in return to fertility)</td>
</tr>
<tr>
<td>Progestogen-only implant ETO 68mg (primarily prevents ovulation)</td>
<td>3 years (Typical Use: 0.05%; Perfect Use: 0.05%)</td>
<td>Bleeding may stop, become more or less frequent or be prolonged. May have less dysmenorrhoea (84% of women continue use at 1 year)</td>
<td>Complications with removal and insertion uncommon. Increased risk of ovarian cysts. (No evidence of delay in return to fertility)</td>
</tr>
<tr>
<td>Progestogen-only injection DMPA (primarily prevents ovulation)</td>
<td>Every 12-13 weeks (Typical Use: 6% Perfect Use: 0.2%)</td>
<td>Amenorrhoea common. Persistent bleeding may occur (56% of women continue use at 1 year)</td>
<td>50% discontinue DMPA due to irregular bleeding (commonly persistent). Weight gain – may be up to 3kg over 1 year. Reduction in BMD which is reversible. (There can be delay in return to fertility of 1 year on discontinuing; however women can become pregnant on discontinuation) Not affected by enzyme-inducing drugs (No evidence of delay in return to fertility)</td>
</tr>
</tbody>
</table>

*defined as the percentage of women experiencing an unintended pregnancy within the first year of use; **refer to Summary of Product Characteristics for full prescribing information


Intra-uterine devices (IUDs): There are few long-term risks for most women associated with Cu-IUD use (see Table 3). 

The risk of pelvic inflammatory disease (PID) is very low (<0.1%) in Cu-IUD users (including nulliparous women), who have a low risk for sexually transmitted infection (STI). 

Screening for STI should be considered prior to insertion of a Cu-IUD in those at risk. 

While there is a risk of ectopic pregnancy when pregnancy occurs, the overall risk of ectopic pregnancy is less than in women not using any contraception. However an ectopic pregnancy should be excluded if a woman becomes pregnant with the Cu-IUD. 

There are a wide range of Cu-IUDs available; the UK Faculty of Sexual & Reproductive Healthcare recommends the use of Cu-IUDs with a total of 380 mm² of copper. Cu-IUDs may be difficult to source in Ireland; the Irish College of General Practitioners can provide information on suppliers of Cu-IUDs. 

Levonorgestrel Intra-uterine System (LNG-IUS): There are two LNG-IUS available in Ireland (containing LNG 52mg and 13.5mg respectively) (see Table 3) with similar efficacy and safety. Women using LNG-IUS 13.5mg are less likely to experience amenorrhoea. The insertion techniques are similar for both LNG-IUS. User satisfaction of LNG-IUS appears to be dependent on pre-insertion counselling. 

The LNG-IUS has become increasingly popular for long-term contraception.
**Progestogen-only implant**: This is a single non-biodegradable, subdermal rod (containing 68 mg etonogestrel) (see Table 3). Implants may be a particularly attractive option for adolescents; a study of postpartum teenagers found that implant users were more likely to continue the method at 2 years compared with oral contraceptive or DMPA users. Similar to other studies, an Irish study found that the most frequent reason leading to discontinuation of the implant is irregular bleeding, although 72% of implant users continued using the method for 2 to 3 years. Non-contraceptive benefits of the implant include reduced dysmenorrhea and pelvic pain.

**Progestogen-only injection**: Depot medroxyprogesterone acetate (DMPA) is given intramuscularly every 12 to 13 weeks (see Table 3). The typical failure rates are higher than other LARC methods perhaps due to the relative frequency that repeat injections are required. Due to reversible reduced bone mineral density associated with DMPA, it should only be considered for women <18 years when other methods of contraception are inappropriate and women ≥50 years should be advised to switch to another method. Women who use DMPA should be reviewed every two years to assess the risks and benefits of continuing treatment. There is a weak association between DMPA use and cervical and breast cancer. A number of observational studies have shown an association between HIV and DMPA; a causal relationship has not been established, but cannot be excluded.

Women requesting LARC should also be informed that the consistent and correct use of condoms is an effective means of protecting against HIV and other STIs.

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**EMERGENCY CONTRACEPTION**

Emergency contraception (EC) is a method of preventing unintended pregnancy following unprotected sexual intercourse (UPSI). Table 4 summarises the various types of EC currently available in Ireland.

**Table 4: Methods of emergency contraception in Ireland**

<table>
<thead>
<tr>
<th>Type of EC (Mode of action)</th>
<th>Recommended Use</th>
<th>Undesirable effects include:*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper bearing intra-uterine device (non-hormonal)</td>
<td>Use within the first 120 hours following first UPSI in a cycle or within 5 days from the earliest estimated date of ovulation</td>
<td>Pain on insertion – analgesia recommended</td>
</tr>
<tr>
<td>Levonorgestrel (LNG)**</td>
<td>Licensed for use within 72 hours of UPSI or contraceptive failure</td>
<td>Vomiting and diarrhoea (common) Cases of VTE reported Reduced efficacy with enzyme–inducing drugs and potential DDI with ulipristal acetate – concomitant use not recommended</td>
</tr>
<tr>
<td>Ulipristal acetate (UPA)**</td>
<td>Licensed for use within 120 hours of UPSI or contraceptive failure</td>
<td>Vomiting and abdominal pain (common) Not recommended in severe asthma treated with oral steroids Reduced efficacy with enzyme–inducing drugs Potential DDI with progestogens - additional contraceptive precautions required *</td>
</tr>
</tbody>
</table>


The most effective method of EC is the Cu-IUD. Levonorgestrel (LNG) and ulipristal acetate (UPA) should be taken as soon as possible after UPSI to increase efficacy. LNG should be taken within 72 hours of UPSI and UPA should be taken within 120 hours. The EMA recently undertook a review of the data of all hormonal EC to address the efficacy of LNG in overweight and obese women. The review of the EMA concluded that the limited data available did not support the view that being overweight or obese affected contraceptive efficacy of hormonal EC; therefore both LNG and UPA continue to be recommended for use as EC in overweight and obese women. There is no evidence to recommend that the dose of EC should be increased.

**Adverse effects** associated with EC include pain with Cu-IUD insertion, and headache, nausea, abdominal pain and altered bleeding patterns with LNG/UPA. Women should be advised to seek medical advice if vomiting occurs within 2 hours of taking LNG or 3 hours of UPA administration. A repeat dose of the same method or a Cu-IUD may be offered if appropriate. Altered bleeding may occur after oral EC; if there is any doubt whether menstruation has occurred, a pregnancy test should be performed at least 3 weeks after UPSI. Enzyme-inducing drugs (EIDs) have the potential to reduce the contraceptive efficacy of LNG and UPA; the Cu-IUD is the only method of EC not affected by EIDs. Women taking EIDs who are not suitable for Cu-IUD should be advised to take 3mg LNG (unauthorised usage). Women should be advised that LNG or UPA will not provide contraceptive cover for subsequent episodes of UPSI and they should be given advice on appropriate reliable contraception for the future.

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**Useful Resources**

- The NMIC clinical enquiry service is available, for healthcare professionals, to deal with specific enquiries including contraception in women > 40 years, delayed/missed pills, drug interactions and choice of contraceptive method in patients with co-morbidities: (Telephone 01 4730589 or email nmic@stjames.ie)
- The UK Faculty of Sexual and Reproductive Healthcare provides guidance on contraceptive methods for healthcare professionals: www.fsrh.org
- “Think Contraception”: A website for the general public on contraceptive issues (including age specific guidance): www.thinkcontraception.ie

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List of references available on request. Date of preparation: March 2015

Every effort has been made to ensure that this information is correct and is prepared from the best available resources at our disposal at the time of issue. Prescribers are recommended to refer to the individual Summary of Product Characteristics (SmPC) for specific information on a drug.
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