

## Contraception

### Key points

- While fertility declines with age, women are at risk of an unintended pregnancy until 12 months after the last menstrual period if over 50 years (24 months if below 50 years).
- Women should be provided with evidence-based information about all contraceptive options in order to support informed decision making.
- Oestrogen containing methods (combined oral contraception and the vaginal ring) and the contraceptive injection are generally not recommended after 50 years as the cardiovascular risks outweigh the benefits.
- The LNG-IUD provides effective management of heavy menstrual bleeding as well as contraception and it can be used as part of an HRT regimen.
- Women in a new relationship should be advised about the use of condoms to prevent STIs.
- Women should be informed about the availability of the Emergency Contraceptive Pill without a prescription at pharmacies and its effectiveness up to 96 hours after unprotected intercourse.

### **Contraceptive methods can be conveniently categorised by their duration of use:**

#### **Permanent methods**

Female and male sterilisation must be viewed as being permanent as successful reversal cannot be guaranteed.

#### ➤ **Tubal ligation (4)**

Tubal ligation is carried out under general anaesthetic either laparoscopically or via a laparotomy.

#### **Advantages:**

- It is immediately effective with a low failure rate (>99.5% effective)<sup>(5)</sup>.
- No hormonal side-effects.

#### **Disadvantages:**

- Requirement for hospital admission and recovery time.
- Surgical and anaesthetic risks.
- May be difficult to reverse.

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➤ **Hysteroscopic transcervical occlusion<sup>(4)</sup>**

Tiny metallic coils are inserted into the fallopian tubes (Essure®) resulting in tubal scarring and blockage. Contraception is required until tubal occlusion is confirmed radiologically three months after device placement.

**Advantages:**

- May be performed under light sedation or local anaesthetic.

**Disadvantages:**

- May cause discomfort during the procedure if under local anaesthetic.
- Requires Day Surgery and may be difficult to access (limited number of gynaecologists trained in technique).
- Is irreversible.

➤ **Vasectomy<sup>(4)</sup>**

Vasectomy involves interruption or occlusion of the vas deferens to prevent the presence of sperm in the ejaculate. While reversal is technically possible through microsurgical techniques, the success rate falls with time.

**Advantages:**

- Allows the male partner to take responsibility for contraception.
- Low failure rate (99.85-99.9% effective)<sup>(5)</sup>.
- Can be performed under local anaesthetic.

**Disadvantages:**

- Small risk of short and long term complications including infection and sperm granuloma.
- Not immediately effective with a requirement for follow up semen analysis at approximately three months to ensure azoospermia.

**Long acting reversible contraception (LARC) methods**

LARC methods are administered less frequently than once per month and are associated with a very low failure rate compared with shorter acting methods (6, 7).

➤ **The contraceptive implant<sup>(7)</sup>**

The implant available in Australia (Implanon NXT®) is a 4cm rod which is inserted under the skin of the upper inner non-dominant arm with the use of local anaesthetic. It releases the progestogen hormone called etonogestrel over a three year period but can be removed earlier if required. It works by preventing ovulation as well as by thickening the cervical mucus and thinning the endometrium<sup>(8)</sup>.

The implant (fully funded) available in New Zealand (Jadelle®) consists of two small flexible silicon rods, each containing 75mg levonorgestrel, a synthetic progestin (9).

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**Advantages:**

- It provides highly effective contraception (> 99% effective in perfect and typical use)<sup>(5)</sup>.
- It is cost effective following the 'up front' insertion cost.
- It is a progestogen-only method and can be used by women with contraindications to oestrogen (such as migraine with aura or a history of VTE).
- It can result in less bleeding or amenorrhoea (approx. 20% women).

**Disadvantages:**

- It requires an insertion and removal procedure.
- It can be associated with a troublesome bleeding pattern: approximately 20% of women have prolonged or heavy bleeding although this can be controlled with interventions such as the use of a combined oral contraceptive pill for three or more months in women who have no contraindications to oestrogen.
- Progestogenic side effects such as acne may occur in some women.

**➤ Levonorgestrel Intra-Uterine Device (LNG-IUD)(7,10)**

The LNG- IUD (Mirena®) is inserted into the uterus by a trained provider. It releases LNG over a five year period and primarily works by thinning the lining of the uterus, toxicity to the sperm gametes and thickening the cervical mucus. It may prevent ovulation in some women in the early months of use<sup>(7)</sup>.

**Advantages:**

- It is highly effective (> 99% effective in perfect and typical use)<sup>(5)</sup>.
- It lasts for five years, but use can be extended to seven years if it is inserted over the age of 45 years.
- It is cost effective after the initial 'up front' insertion cost.
- It is highly effective at reducing menstrual blood loss and is indicated for the management of HMB; approximately 20% of women become amenorrhoeic.
- It is a progestogen-only method and can be used by women with contraindications to oestrogen (such as migraine with aura or a history of VTE).
- It can be used to protect the endometrium in women using oestrogen to control menopausal vasomotor symptoms.

**Disadvantages:**

- It requires a procedure for insertion with a low risk of complications (including expulsion).
- Women may experience irregular spotting and bleeding for the first few months after insertion.

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- Progestogenic side effects such as acne may occur in some women.

### ➤ **Copper-bearing IUD<sup>(7)</sup>**

A copper-bearing IUD is inserted into the uterus by a trained provider. Depending on the type, they last for up to five or ten years. It primarily works by being toxic to the gametes but may also have an effect on implantation.

#### **Advantages:**

- It is highly effective (>99% effective in perfect and typical use)<sup>(5)</sup>.
- It lasts for five years or ten years depending on the type and if inserted over the age of 40 years it can be continued until contraception is no longer required.
- It is cost effective after the initial 'up front' insertion cost.
- It provides a hormone-free highly effective contraceptive option for women.
- It can be used by women with contraindications to hormonal methods (e.g. women with a history of hormone dependent cancer).
- It provides highly effective emergency contraception if inserted within five days of unprotected intercourse.

#### **Disadvantages:**

- It requires a procedure for insertion with a low risk of complications (including expulsion).
- Women generally experience periods which are heavier and may be more painful.
- In Australia the copper IUD is not PBS-listed so has a higher upfront cost than the hormonal IUS while in New Zealand it is subsidised so is much cheaper than the hormonal IUS.

### ➤ **Depomedroxyprogesterone acetate (DMPA) injections (7)**

DMPA is a progestogen-only injection administered into the gluteal or deltoid muscle every 12 weeks. It works by preventing ovulation and is not recommended for women over the age of 50 due to its effects on bone density and cardiovascular risk <sup>(2)</sup>.

#### **Advantages:**

- It is an effective method but not as effective as the implant or IUDs because the women needs to return for an injection every 12 weeks (over 99% effective in perfect use and 94% in typical use) <sup>(5)</sup>.
- It is associated with a high rate of amenorrhoea so can be useful for women with heavy menstrual bleeding.

#### **Disadvantages:**

- It is not recommended as a first line method for women over 45 years or for use in women over 50 years due to its effect on bone mineral density.

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- It needs to be administered every 12 weeks.
- It can be associated with irregular bleeding and hormonal side effects. It is not immediately reversible and may take up to 12 months for fertility to return to its previous level.

## Medium-acting contraception

### ➤ Vaginal ring <sup>(5)</sup>

The vaginal ring is a soft silastic ring (NuvaRing®) containing a low dose of oestrogen and progestogen hormones, which the woman inserts into her vagina. The ring is left in place for 3 weeks then removed for a week prior to inserting a new ring. It primarily works by preventing ovulation but also thickens cervical mucus and thins the endometrium <sup>(5)</sup>.

#### **Advantages:**

- The vaginal ring provides an alternative route of combined hormonal contraceptive administration which does not require daily pill taking.
- Vaginal rings can be used 'back to back' for three months at a time to control blood loss.
- The ring can provide good 'cycle control' for women who experience break through bleeding on a combined pill.
- When used correctly it has a low failure rate (over 99% effective in perfect use and 91% in typical use) <sup>(5)</sup>.

#### **Disadvantages:**

- The vaginal ring contains ethinyl oestradiol and has the same contraindications and risks as combined oral contraception (e.g. it should not be used by women with a history of VTE, smokers over the age of 35 years, women with migraine with aura; it increases the risk of VTE by approximately two to three-fold although the absolute risk for most women is very low)
- Women must remember to remove and replace the ring for it to be effective.
- Oestrogen-containing methods are not generally advised for women over the age of 50 years as the risks outweigh the benefits.
- While use of the vaginal ring may mask the symptoms and signs of menopause, women with no contraindications to its use can continue the method until 50 years.
- The vaginal ring is not PBS-listed so more expensive than some contraceptive pills.
- Women need to feel comfortable inserting the ring into the vagina.

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## Short-acting contraception

### ➤ Combined oral contraception

The combined hormonal contraceptive pill contains a low dose of oestrogen and progestogen hormones. It primarily works by preventing ovulation but also thickens cervical mucus and thins the endometrium. While there are many different pill formulations available, it is generally recommended to use the lowest possible dose of hormones (i.e. pills containing 35mcg ethinyl estradiol or less) (5).

#### **Advantages:**

- Women experience regular bleeding with reduced blood loss and dysmenorrhoea; while all combined pills reduce menstrual blood loss, the combined pill containing estradiol valerate and dienogest (Qlaira®) has been found to significantly reduce menstrual bleeding compared to placebo and has an indication for the management of Heavy Menstrual Bleeding.
- Active hormonal pills can be safely taken continuously for up to 12 months or more (skipping the placebo pills) in order to reduce menstrual blood loss.
- The combined pill also reduces the risk of ovarian and endometrial cancer.
- The combined pill can reduce perimenopausal symptoms such as vaginal dryness and hot flushes and supports bone health.
- When used correctly it has a low failure rate (over 99% effective in perfect use and 91% in typical use) (5).

#### **Disadvantages:**

- The combined pill cannot be used by women with contraindications to oestrogen (e.g. it should not be used by women with a history of VTE, smokers over the age of 35 years, women with migraine with aura).
- The combined pill is associated with an increased risk of VTE by approximately two to three-fold (although the absolute risk for most women is very low).
- Women must remember to take a pill every day for it to be effective.
- Oestrogen-containing methods are not generally recommended for women over the age of 50 years as the risks outweigh the benefits.
- While use of the combined pill may mask the symptoms and signs of menopause, women with no contraindications to its use can continue the method until 50 years.

### ➤ Progestogen-only pill – the 'mini-pill'

The progestogen only pill contains a very small dose of progestogen and primarily works by thickening cervical mucus. In some women in some cycles it may prevent ovulation.

#### **Advantages:**

- It can be used by women with contraindications to the use of oestrogen who prefer an oral method.

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- It is not associated with an increased risk of cardiovascular events.

**Disadvantages:**

- It must be taken within a three hour time frame each day for it to be effective; effectiveness is generally lower than for the combined pill as a result of this time-sensitivity (more than 99% effective in perfect use and 91% in typical use) (5).
- It may be associated with irregular bleeding in some women.

## Coitally-dependent barrier methods

The barrier methods require 'action' with every act of intercourse, which results in them being less effective than the longer acting methods. Condoms, both male and female, are the only method of contraception that prevent STIs (4).

### ➤ Contraceptive diaphragms

The diaphragm is a barrier method which the woman inserts herself to cover the cervix to prevent sperm reaching the uterus. It must be left in place for a minimum of 6 hours after intercourse to allow sperm to be killed off by the vaginal acidity. A single size silicone contoured diaphragm called Caya® has been introduced into Australia in 2015 replacing the multi-size Ortho® All-Flex®. The single size diaphragm has a life-span of two years<sup>(11)</sup>; the manufacturer recommends the use of a lactic acid buffer gel with the diaphragm (note that spermicide is unavailable in Australia).

**Advantages:**

- The diaphragm provides a hormone free alternative.
- The diaphragm needs only to be used at the time of intercourse.

**Disadvantages:**

- It has a relatively high failure rate even with perfect use compared to other methods (while data are limited for the single size diaphragm, the product information states it is 86% effective in perfect use and 82% in typical use). Some women may find it difficult to insert with a risk of it being placed incorrectly.
- It may be associated with urethral irritation and a risk of urinary tract infection(4).

### ➤ Male condom<sup>(4)</sup>

The male condom is a fine latex or polyurethane sheath, worn on the erect penis. They can be used with a water-based lubricant which may be useful for women experiencing perimenopausal vaginal dryness.

**Advantages:**

- They provide a hormone-free alternative.
- Condoms prevent STIs.

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- They are easily purchased and need only be used at the time of intercourse.

**Disadvantages:**

- They have a relatively high failure rate in typical use (especially in 'new users') due to the need for consistent use and the risk of breakage, slippage or leakage. (98% effective in perfect use and 82% in typical use) (5).
- Some men (and their partners) believe they interfere with sexual pleasure.

➤ **Female condom<sup>(4)</sup>**

The female condom is a polyurethane sheath inserted into the vagina prior to intercourse. It has an inner and an outer ring which are used to anchor the condom in place and to ensure that the penis is guided into the sheath.

**Advantages:**

- It provides a female controlled barrier option.
- It simultaneously prevents STIs.
- The polyurethane transmits body heat better than latex so may enhance sexual pleasure.

**Disadvantages:**

- It can be difficult to find in pharmacies (available at family planning clinics)
- It is relatively expensive compared to a male condom.
- It has a slightly higher failure rate than the male condom (95% effective in perfect use and 79% in typical use) (5).

**Emergency Contraception**

Emergency contraception (previously known as "the morning after pill") is used to prevent pregnancy after unprotected intercourse or contraceptive failure. A new emergency contraceptive pill, ulipristal acetate (UPA), has recently become available in Australia.

➤ **Emergency contraceptive methods:**

1. Single 1.5mg levonorgestrel emergency contraceptive (LNG-EC) tablet; licensed for use up to 72 hours after unprotected intercourse; it should be taken as early as possible but has some effectiveness if taken up to 96 hours after unprotected intercourse; available over the counter without the need for a prescription; acts by preventing or delaying ovulation; can be used by breastfeeding women; can be used multiple times in a cycle if needed<sup>(12)</sup>.
2. Single 30mg ulipristal acetate (UPA) tablet marketed as EllaOne; licensed for use up to 120 hours after unprotected intercourse with superior efficacy to LNG-EC if taken within 24, 72 and 120 hours of intercourse (most effective if taken within 24 hours)<sup>(13)</sup>;

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3. UPA is a selective progesterone receptor modulator (SPRM) which works to prevent or delay ovulation even when the LH surge has begun. Breastfeeding women are advised to express and discard breastmilk for one week after taking UPA. Women using progestogen containing contraception should seek medical advice on when to start or re-start the method after taking UPA. UPA and the LNG-EC should not be used together in the same cycle.
4. A Copper IUD inserted within five days of unprotected intercourse; provides highly effective ongoing long-term contraception; can be difficult to access within the appropriate time frame.

**Advantages of oral EC:**

- The LNG-EC is readily available at pharmacies without a prescription; UPA is available via a private prescription in Australia (it is not currently available in New Zealand).
- Both methods are very safe to use in almost all women; they have no effect on a developing fetus if taken inadvertently during pregnancy; they are not associated with reduced future fertility or an increased risk of ectopic pregnancy.
- Both methods have few side effects including a low risk of nausea and vomiting.
- The next period will probably come at the expected time. If it is late, light or unusual in any way medical advice should be sought.

**Disadvantages of oral EC**

- It does not provide ongoing contraception (unlike the copper IUD which can be used to provide emergency contraception followed by effective ongoing protection for up to five or ten years);
- It is not effective after ovulation has occurred and because ovulation may be delayed until later in the cycle contraceptive precautions are required until the next menstrual period.

Note that women over the age of 50 years using a progestogen-only method of contraception (LNG-IUS, implant or POP) who are amenorrhoeic for 12 months may have two x FSH tests six weeks apart and if both are over 30IU then it can be advised that contraception is only required for a further 12 months.

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## Further reading

- Faculty of Sexual & Reproductive Healthcare Royal College of Obstetricians and Gynaecologists  
[www.fsrh.org](http://www.fsrh.org)
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