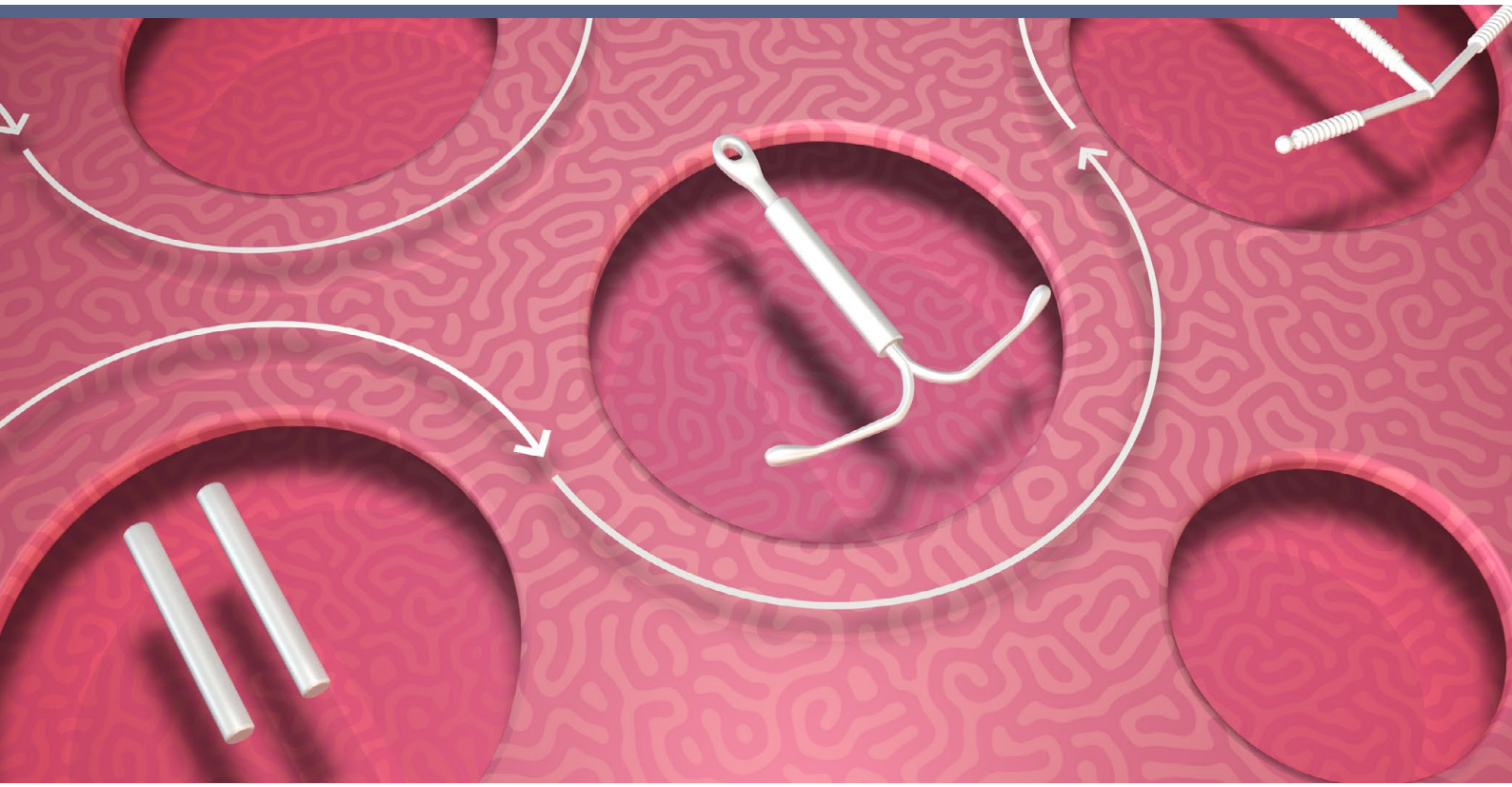

Long-acting contraceptives: implants and IUCs

Long-acting reversible contraceptives include progestogen (levonorgestrel) implants and copper or levonorgestrel intrauterine contraceptives. These are the most effective forms of reversible contraception and are recommended as a preferred option in patients who do not wish to become pregnant for a number of years, including those who are young or nulliparous. Long-acting contraceptives provide a "fit and forget" approach to contraception.

KEY PRACTICE POINTS:

- Long-acting contraceptives have the highest rates of effectiveness of the available reversible contraceptive methods, and are associated with the highest rates of continuation and patient satisfaction
- Age and parity are not a barrier: levonorgestrel implants and all types of intrauterine contraception (IUC) can be used by patients of any age, including those who are nulliparous
- Levonorgestrel implants are the most effective form of contraception and provide protection for up to five years (fully funded without restriction)
- Copper and levonorgestrel IUCs are licenced for three to ten years of contraception (fully funded without restriction), but can be used for shorter, and in some cases longer, durations:
  - One type of levonorgestrel intrauterine system (IUS), Mirena, is indicated for the treatment of heavy menstrual bleeding or to provide endometrial protection during menopausal hormone therapy, in addition to use as a contraceptive
  - Copper intrauterine devices (IUDs) can be used in many clinical scenarios where the use of hormonal contraceptives is not recommended, such as in those with higher cardiovascular risk or current or past breast cancer

This is a revision of a previously published article. What's new for this update:

- Includes recommendations from New Zealand Aotearoa's guidance on contraception, Ministry of Health (Dec, 2020), available from: **https://www.health.govt.nz/system/files/documents/publications/final_aotearoa_contraception_guidance.pdf**
- Updated terminology in line with national guidance:
  - Levonorgestrel IUS (or LNG-IUS) – levonorgestrel intrauterine system (i.e. Mirena or Jaydess)
  - Intrauterine contraception (IUC) – includes levonorgestrel IUS and copper intrauterine device (IUD)
- When switching from an IUC to a progestogen implant, the World Health Organization recommends that the IUC be left in situ until the next menstrual period if unprotected sexual intercourse has occurred and it is more than seven days since menses onset. Previously it was recommended to leave in situ for seven days if unprotected sexual intercourse occurred in the seven days prior to insertion of the implant.
- Information added on when pregnancy tests are indicated for patients returning for a replacement IUC

Evidence increasingly favours the use of long-acting reversible contraceptives

Long-acting reversible contraceptives (LARCs) are the most effective reversible contraceptive options available, equally as effective as sterilisation methods.[1] Once removed, the patient's natural fertility resumes. They do not require regular adherence to be effective and evidence suggests LARCs are a preferred option for many people, including those who are younger or nulliparous.[2] In addition, a higher percentage of people persist with use of a LARC compared to those using other methods such as oral contraceptives or medroxyprogesterone acetate injections.[2]

LARC options* that are fully funded without restriction in New Zealand are: levonorgestrel implants, two levonorgestrel IUSs and a variety of copper IUDs.

* Depot medroxyprogesterone acetate injections are no longer classified as a long-acting contraceptive as they are less effective than IUCs or implants and require patients to return for three-monthly visits[3]

 For a comparison of the effectiveness of different LARCs and permanent contraceptive methods (i.e. sterilisation), see Table 2 in "**Contraception: which option for which patient?**".

Levonorgestrel implants

Levonorgestrel implants prevent pregnancy by inhibiting ovulation, as well as preventing sperm penetration by altering cervical mucus. They are the most effective form of reversible contraception and can provide protection for a period of up to five years.[1] However, there is some evidence that the contraceptive effectiveness decreases after the fourth year of use, particularly in people weighing over 60 kg.[1] Patients should be informed of this risk and removal and replacement should occur by the fifth year of use.[1] After removal of the implant, normal fertility returns quickly; 45% of females planning pregnancy become pregnant within three months and 86% within 12 months.[4]

Placing levonorgestrel implants

Levonorgestrel implants are available on prescription, or up to three packs are available on a Practitioner's Supply Order (PSO). Jadelle, the device currently fully funded in New Zealand (as of July, 2021), consists of two flexible rods, approximately the size of match sticks, each containing 75 mg of levonorgestrel.[4,5] The rods are inserted sub-dermally under local anaesthetic using a disposable, sterile trocar, typically on the inside of the non-dominant arm.[4] N.B. Trocars need to be ordered separately. The insertion procedure should take approximately two minutes, but training is required.[1]

Approximately one in five patients experience local pain, bruising or tingling at the insertion site during the first month of use.[6] The rods are palpable in the upper arm and a lump or outline may be visible.[7] A small scar at the site of insertion usually occurs.[7]

A levonorgestrel implant can be inserted at any time of the menstrual cycle. Depending on the previously used method of contraception, condoms or another form of contraception may need to be used for the first seven days after placing the implant (Table 1). The ideal time for inserting a levonorgestrel implant for patients currently taking a combined oral contraceptive (COC) is in their second week (or longer) of active hormone pills, as there will then be no need for bridging contraception (Table 1).

Removal of an implant generally takes longer than insertion, but it should still be a relatively quick procedure. If rods have been correctly inserted, migration to other tissues is not thought to occur, however, there have been rare cases reported of insertion into deep tissue, nerve and vascular injury.[4] There is no delay in return to fertility after removal of a levonorgestrel implant so a contraceptive should be initiated immediately if the patient is not planning a pregnancy.[1]

When should levonorgestrel implants not be used?

Levonorgestrel implants are contraindicated* in patients with:[5]

- Current breast cancer; use of hormonal contraceptives in people with a history of breast cancer is generally not recommended unless other methods are not available or acceptable, as the theoretical or proven risks usually outweigh the benefits.[10] Any consideration should ideally be discussed with an oncologist.[10]
- Unexplained vaginal bleeding
- Severe liver disease, e.g. decompensated cirrhosis, or a liver tumour

Levonorgestrel implants should be used with caution* in patients with:[5]

- New symptoms or diagnosis of ischaemic heart disease
- A history of stroke or transient ischaemic attack
- Acute porphyrias

* For a complete list of contraindications and cautions, refer to the New Zealand Formulary: **https://www.nzf.org.nz/nzf_10057** and the United Kingdom Medical Eligibility Criteria: **https://www.fsrh.org/standards-and-guidance/uk-medical-eligibility-criteria-for-contraceptive-use-ukmec/**

The effectiveness of levonorgestrel implants is reduced when people are also taking hepatic enzyme-inducing medicines,

Table 1: Recommendations for additional contraception after switching to the levonorgestrel implant.[4, 8, 9]

Contraceptive method switching from	Timing of implant insertion	Additional contraceptive advice
None	Up to and including day seven of the menstrual cycle	No additional precautions required
	Day eight of menstrual cycle onwards	Use condoms for seven days
COC: regimen includes a hormone-free interval	From day two of a hormone-free interval and in the first week of taking active ingredient tablets following a hormone-free interval	Use condoms for seven days
	In the second week or longer of taking active ingredient tablets until day one of a hormone-free interval	No additional precautions required
COC: continuous use, i.e. no hormone-free interval	In the first week of taking active ingredient tablets	Use condoms for seven days
	In the second week or longer of taking active ingredient tablets	No additional precautions required
Progestogen-only pills (POPs) or implant	Any time	Use condoms for seven days
IUC: levonorgestrel IUS or copper IUD	First seven days of menstrual cycle	If unprotected sexual intercourse has occurred in this menstrual cycle: leave the IUC in situ until the next menstrual period[8] If unprotected sexual intercourse has not occurred in this menstrual cycle: use condoms for seven days OR leave the IUC in situ until the next menstrual period[8]
	At other stages of menstrual cycle	
Medroxyprogesterone acetate injections	Within 14 weeks of previous injection	No additional precautions required
	More than 14 weeks since the previous injection*	Use condoms for seven days

* Pregnancy must first be ruled out if unprotected sexual intercourse has occurred

such as some antiepileptic medicines or the antibiotic rifampicin. If use of the enzyme-inducing medicine is short term, an additional method of contraception, e.g. condoms, is recommended during this time and for four weeks following use (rather than removing the levonorgestrel implant). However, if patients require long-term use of a hepatic enzyme-inducing medicine, switching to an alternative method of contraception is recommended.[1]

For further information on interactions of contraceptives with enzyme-inducing medicines, see: "Interactions between COCs or POPs and other medicines" in "**Oral contraceptives: selecting a pill**" and "Balancing the benefits and risk of prescribing antiepileptic medicines in women", **www.bpac.org.nz/2018/antiepileptic.aspx**

Levonorgestrel implants have variable effects on bleeding patterns

Most patients experience a change in their typical pattern of bleeding within the first three to six months after insertion of an implant and these changes are variable.[1, 6] Although bleeding patterns may settle after this time, the pattern within the first three months of implant insertion is often predictive of future bleeding.[1] After six months to one year of use, approximately 35% of patients report having regular bleeding similar to their normal menstrual cycle, approximately 25 – 35% report irregular or infrequent bleeding, and approximately 20% report amenorrhoea.[6] The remainder of patients experience

Training and resources

Levonorgestrel implants:
Contact your local DHB or Family Planning clinic regarding access to training courses.

A continuing professional development online course for medical practitioners and nurses is available from the Goodfellow Unit: **www.goodfellowunit.org/courses/jadelle%C2%AE-progesterone-only-implant-contraception**

Intrauterine contraceptives:
IUC insertion training is available from Family Planning's National Contraception Training Service: **https://www.familyplanning.org.nz/courses**

Patient information:
Patients can access information about long-acting contraceptives at the Family Planning New Zealand website. Printed resources for patients can be ordered from: **www.familyplanning.org.nz/catalog/resources**

Table 2: Fully funded IUCs in New Zealand as of October, 2024, and the possible extended durations of effectiveness.[1,11] Refer to the NZF (**www.nzf.org.nz**) or Pharmaceutical Schedule (**schedule.pharmac.govt.nz/ScheduleOnline.php**) for funding information.

	Device	Licenced duration of use	Possible extended duration *N.B. Extended use of IUCs in younger people is not specifically endorsed by the FSRH, see: "Extended use of an IUC is possible in some cases".*
Copper IUDs	**29.1 x 23.2 mm**		
	Choice TT380 short*	5 years	Extended duration not recommended due to lack of evidence
	380 7 Med NSHA	5 years	Extended duration not recommended due to lack of evidence
	33.6 x 29.9 mm		
	Choice TT380 standard†	10 years	12 years
	TCu 380 Plus Normal	5 years	Extended duration not recommended due to lack of evidence
	35.5 x 19.6 mm		
	Choice Load 375*	5 years	10 years
	Cu 375 Standard	5 years	Extended duration not recommended due to lack of evidence
Levonorgestrel IUSs	Mirena	5 years (see box)	7 years
	Jaydess	3 years	Extended duration not recommended due to lack of evidence

* Currently out of stock (Oct, 2024); check the **Pharmac website** for stock updates

† To be delisted from the Pharmaceutical Schedule on 1st October, 2024

other patterns such as heavy bleeding or bleeding every two weeks.[6] If bleeding is persistent or problematic, it may require pharmacological management; a COC, taken either continuously or cyclically for three months, is usually the first-line treatment to reduce uncontrolled bleeding in patients using a levonorgestrel implant.[1]

For further information on managing uncontrolled bleeding with a progestogen-only contraceptive, see "Managing persistent or problematic bleeding" in "**Depot medroxyprogesterone acetate: an intermediate option**" and "FSRH clinical guidance: problematic bleeding with hormonal contraception". Available from: **www.fsrh.org/standards-and-guidance/documents/ceuguidanceproblematicbleedinghormonalcontraception**

Weight gain unlikely

Some patients may experience weight change with a levonorgestrel implant, however, there is no evidence of causation.[1]

Table 3: Contraceptive advice after insertion of a levonorgestrel IUS if switching from another contraceptive method. Adapted from the Faculty of Sexual and Reproductive Healthcare, United Kingdom.[5, 11]

Contraceptive method switching from	Timing of IUD insertion	Additional contraceptive advice
	Key: ✓	*No other contraceptive methods are required*
	!	*Bridging contraception required for seven days, e.g. condoms or continuing the previous contraceptive*
None or barrier methods	Days one to seven of menstrual cycle	✓
	After day seven of the menstrual cycle	! Provided pregnancy has been ruled out
COC: regimen includes a hormone-free interval	In the second week or longer of taking active ingredient tablets until day one of a hormone-free interval	✓ Provided no missed pills
	From day two of a hormone-free interval and in the first week of taking active ingredient tablets following a hormone-free intervall	!
COC: continuous use, i.e. no hormone-free interval	In the second week or longer of taking active ingredient tablets	✓ Provided no missed pills
	In the first week of taking active ingredient tablets	!
POP	Any time	!
Levonorgestrel implant	Up to three years post-insertion	✓ This FSRH advice refers to the Nexplanon implant which is only licensed for three years use. The Jadelle implant used in New Zealand provides contraceptive protection for up to five years after insertion; efficacy may be reduced in those weighing over 60 kg after four years.
	After three years post-insertion	!
Medroxyprogesterone acetate injections	Within 14 weeks of previous injection	✓
	More than 14 weeks since the previous injection	! Provided pregnancy has been ruled out
Copper IUD	Any time	! If unprotected intercourse has occurred within the last seven days leave the copper IUD in place and use condoms for a further seven days before changing to levonorgestrel IUS

Intrauterine contraceptives

An intrauterine contraceptive (IUC), i.e. both levonorgestrel IUS and copper IUD, provides contraception by preventing fertilisation and preventing implantation of fertilised eggs. They are effective for three to ten years, or potentially longer, depending on the type (see: Table 2 and "Extended use is possible in some cases").[1, 11] One levonorgestrel IUS (Mirena) can be used for endometrial protection in patients taking menopausal hormone therapy.[1]

For further information on menopausal hormone therapy, see: **https://bpac.org.nz/2019/mht.aspx**

Inserting an IUC

IUCs are best fitted by an experienced practitioner, e.g. who inserts an IUC at least once a month, as the risk of perforation and subsequent expulsion are lower and patients typically experience less discomfort.[11] IUC insertion training is available from Family Planning's National Contraception Training Service: **https://www.familyplanning.org.nz/courses**

Assess for STIs: A STI check, and testing if necessary, should be undertaken prior to inserting an IUC. If the patient is asymptomatic, an IUC can be inserted prior to swab results being available, provided they can be promptly contacted if they have a positive result.[11] STIs can usually be treated without the need for removal of the IUC.[11] Antibiotic prophylaxis for STIs prior to IUC insertion in asymptomatic patients is not justified.[1] In patients with symptoms or signs suggestive of a STI, investigation and treatment of any infection should take place before insertion of an IUC.[1]

Timing of insertion: Patients who have a levonorgestrel IUS fitted may require bridging contraception for the first seven days after insertion (Table 3). The copper IUD is immediately effective when fitted. If patients are post-partum, have recently used emergency contraception or insertion is being performed after a termination of pregnancy, additional precautions regarding the timing of insertion may apply; see the NZF for details: **https://www.nzf.org.nz/nzf_4244**

A follow-up visit is not essential provided that patients understand how to check thread placement and how to recognise symptoms and signs of infection, perforation or expulsion.[11] Advise patients to seek medical care if they have abnormal bleeding, symptoms or signs of infection or pregnancy, or if they are unable to locate the IUC threads.[1]

Removal: There is no delay in return to fertility after removal of an IUC.[1]

When should IUCs not be used?

Copper or levonorgestrel IUCs should not be inserted in patients with:[10, 12]

- Distortions of the uterine cavity, either anatomical or due to uterine fibroids; patients who have previously had a caesarean section may use an IUC[11]
- Unexplained vaginal bleeding
- Pelvic inflammatory disease
- Purulent cervicitis, chlamydia or gonorrhoea infections
- Puerperal sepsis following birth or following a post-septic abortion
- In the post-partum period, unless initiated within the first 48 hours following delivery; insertion four weeks following delivery is recommended
- Endometrial, ovarian or cervical cancer; consultation with the patient's oncologist is recommended
- Gestational trophoblastic disease, until levels of β-human chorionic gonadotropin (βhCG) are undetectable; oral contraceptives are preferred following gestational trophoblastic neoplasia[13]

A levonorgestrel IUS is contraindicated in patients with current breast cancer;[10] use of hormonal contraceptives in people with a history of breast cancer is generally not recommended unless other methods are not available or acceptable, as the theoretical or proven risks usually outweigh the benefits.[10] Any consideration should ideally be discussed with an oncologist.[1]

Copper IUDs may initially cause heavier bleeding, levonorgestrel IUSs reduce bleeding

The use of a copper IUD can initially result in heavier and more painful menstrual bleeding, but this typically improves after the first three months.[11] Although not listed as a contraindication in most guidelines, the use of a copper IUD may not be ideal in patients who already have heavy, painful menstrual bleeding.

Both funded levonorgestrel IUSs reduce menstrual bleeding, however, the extent of reduction is greater in patients fitted with Mirena than patients fitted with Jaydess, and only Mirena is indicated for the treatment of heavy menstrual bleeding.[5, 11] In one clinical trial directly comparing both levonorgestrel IUSs, approximately 13% of patients using Jaydess reported amenorrhoea after three years' use, compared with 24% of patients using Mirena.[14] For both IUSs, the greatest reductions in bleeding occur in the first three to six months.[14]

IUCs can be used with tampons and menstrual cups; evidence suggests there is no increased risk of expulsion.[1] Advise patients to take care when removing a menstrual cup to avoid accidentally removing the IUC by pulling the threads.[1]

Many patients experience increased menstrual pain and cramps

Changes in menstrual pain and cramps are common after insertion of an IUC. One study reported that three months after having a device inserted, approximately one-third of people using a levonorgestrel IUS and two-thirds using a copper IUD had increased pelvic pain and cramps; this rate reduced to approximately 10 – 15% after six months of use.[15] Some people using a levonorgestrel IUS experience improvements in dysmenorrhoea.[11]

Adverse effects associated with insertion of an IUC are uncommon

Insertion carries a small risk of uterine perforation and vasovagal reaction

Uterine perforation occurs at a rate of approximately 1 – 2 per 1,000 insertions of IUCs; rates are lowest when insertion is performed by an experienced practitioner.[16] The risk is increased to approximately 6 per 1,000 insertions for patients up to 36 weeks post-partum or who are breastfeeding.[16] If a perforation occurs, ultrasound or X-ray is typically required to ascertain the degree of perforation or locate the device, followed by laparoscopic removal.[11] Some patients may have mild vasovagal reactions, however, severe vasovagal reactions are rare, with a reported incidence of approximately one in 500 patients.[17]

The risk of pelvic inflammatory disease is very low

Research shows that placement of an IUC is associated with a small increase in the risk of pelvic inflammatory disease (0.5% of insertions within the first 20 days).[11] Screening for STIs before IUC insertion does not reduce the risk of pelvic inflammatory disease.[11] The IUC should be removed if the patient has not responded to antibiotic treatment within 72 hours.[1]

IUC expulsion occurs in a minority of patients

Expulsion rates of 2 – 15% have been reported for periods of follow-up ranging from one to ten years; on average it is estimated that fewer than one in 20 patients over the course of five years experience IUC expulsion.[18] Expulsion most often occurs in the first three months of use and during menstruation.[18] Bayer – who is the supplier of both Mirena and Jaydess – will supply a free levonorgestrel IUS replacement directly to clinics in the case of device expulsion (within three months of insertion).

An IUC should be removed if pregnancy occurs

In the unlikely event that a patient using an IUC becomes pregnant, the device should be removed, if possible, in the first 12 weeks of pregnancy; it is recommended to discuss this with an obstetrician. Continuing a pregnancy with an IUC in place increases the risk of complications such as spontaneous abortion and preterm delivery.[19] Although there is an overall reduced risk of ectopic pregnancy while using an IUC, if a pregnancy does occur, it is estimated that in up to half of cases this will be ectopic.[11] Therefore, an early ultrasound scan is required.[11]

Extended use of an IUC is possible in some cases

As of January 2024, the licenced duration of use of Mirena has been extended in the United Kingdom to eight years for contraception (no changes have been made to the licenced duration of use for other indications, e.g. heavy menstrual bleeding). A statement released by the United Kingdom Faculty of Sexual and Reproductive Healthcare is available **here**. In the United States, the **FDA has approved** an extension to the possible duration of use by one year, allowing the Mirena to be used to prevent pregnancy for up to eight years. The approved duration of use of Mirena in New Zealand remains at five years and use beyond this is unapproved. We await any revision of the New Zealand Contraceptive Guidelines.

Additional considerations

Patients need to cover the costs for IUC insertion or removal and appointment fees associated with these procedures, unless they are eligible for a partially subsidised or no-cost insertion*. A standard prescription co-payment fee for the device will usually apply at the pharmacy. N.B. Levonorgestrel IUSs are not available on a Practitioner's Supply Order (PSO).

* Funding for insertions may be available for some people through their local DHB or PHO; check your local HealthPathway. Information will be updated as more details emerge or check the Ministry of Health website.

Two appointments are generally required if a patient is considering an IUC; one for a discussion to check if it is an appropriate option and another, often longer appointment, for the insertion procedure.

For further information, see: **https://pharmac.govt.nz/news-and-resources/consultations-and-decisions/decision-to-widen-access-to-levonorgestrel-intrauterine-lius-systems-mirena-and-jaydess**

The Faculty of Sexual and Reproductive Healthcare (FSRH), United Kingdom, guidelines, which form the basis of New Zealand guidance, recommends that use of some IUCs can be extended (Table 2), without affecting contraceptive efficacy.[11] Patients who have a Mirena inserted for contraception or heavy bleeding at age 45 years or older can extend use for seven years or until menopause* if amenorrhoeic.[1] Patients who have a copper IUD inserted after age 40 years may continue to use the same device until menopause; the device should be removed when contraception is no longer required.[1] Extended use of IUCs in younger people is not specifically endorsed by the FSRH.[11]

* In general, natural loss of fertility can be assumed at age 55 years; spontaneous conception after this age is extremely rare even in those who still have menstrual bleeding[20]

Replacing IUCs

There are no concerns with short-term delays in replacing IUCs due to growing evidence supporting extended use.[1] Patients presenting for a replacement Mirena between five and seven years after insertion, who were aged < 45 years when the Mirena was first placed, can have an immediate replacement if they have a negative pregnancy test.[1] Another pregnancy test at least three weeks since the last instance of unprotected sexual intercourse is also recommended.[1] If more than seven years since insertion, replacement should be delayed until there has been a negative pregnancy test at least three weeks since the last instance of unprotected sexual intercourse, as contraceptive effectiveness is diminished.[1] Recommend condoms or abstinence until pregnancy can be excluded.

Patients returning for a replacement copper IUD outside of the recommended duration of use should have pregnancy excluded before insertion of the new device (unless they require emergency contraception, see: "Emergency contraception" in "**Contraception: which option for which patient**".[1]

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