

Long-acting contraceptives: implants and IUDs

Long-acting contraceptives include progestogen (levonorgestrel) implants, and copper or levonorgestrel intrauterine devices (IUDs; also known as levonorgestrel intrauterine systems or LIUS). These are the most effective forms of 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 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 IUDs can be used by patients of any age, including those who are nulliparous
- Levonorgestrel implants are the most effective form of reversible contraception and provide protection for up to five years (fully subsidised without restriction)
- Copper and levonorgestrel IUDs are licenced for three to ten years of contraception (fully subsidised without restriction), but can be used for shorter, and in some cases longer, durations.
 - One levonorgestrel IUD (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 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

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

Long-acting contraceptive options that are fully subsidised without restriction in New Zealand are levonorgestrel implants, two levonorgestrel IUDs (see: “Two levonorgestrel IUDs are now available without restriction”) and a variety of copper IUDs (see Table 2)*.

* Depot medroxyprogesterone acetate injections are no longer classified as a long-acting contraceptive as they are less effective than IUDs or implants and require patients to return for three monthly visits.¹

Levonorgestrel implants

Levonorgestrel implants prevent pregnancy by inhibiting ovulation, as well as preventing sperm penetration by altering cervical mucus.³ They are the most effective form of reversible contraception and can provide protection for a period of up to five years. However, some patients may require replacement of the rods before this time because of evidence that suggests a reduction in efficacy over time with increasing body weight.⁴ Current Medsafe advice is that women weighing over 60 kg should have “the option to change their Jadelle implants after four years.”⁴ After removal of the implant, over 90% of patients ovulate within three weeks.⁵

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 subsidised in New Zealand, consists of two flexible rods, approximately the size of match sticks, each containing 75 mg of levonorgestrel.^{6,7} The rods are inserted sub-dermally under local anaesthetic using a disposable, sterile trocar, typically on the inside of the non-dominant arm.⁷ N.B. Trocars need to be ordered separately. The insertion procedure should take approximately two minutes, but training is required.⁸

Approximately one in five patients experience local pain, bruising or tingling at the insertion site during the first month of use.⁹ The rods are palpable in the upper arm and a lump or outline may be visible.¹⁰ A small scar at the site of insertion usually occurs.¹⁰

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 using 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.³ 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.⁵

When should levonorgestrel implants not be used?

Levonorgestrel implants are contraindicated* in patients with:^{6,11}

- Current breast cancer
- Unexplained vaginal bleeding

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 devices:

IUD insertion training is available from Family Planning: www.familyplanning.org.nz/courses/course?id=12

Patient information:

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


- Severe liver disease, e.g. decompensated cirrhosis

Levonorgestrel implants should be used with caution* in patients with:^{6,11}

- A history of breast cancer; would usually only be considered if cancer has been in remission for more than five years and all other contraceptive options are inappropriate
- Risk factors for ectopic pregnancy, e.g. previous history, tubal surgery
- Functional ovarian cysts
- Hepatic dysfunction
- Systemic lupus erythematosus with positive antiphospholipid antibodies

* For a complete list of contraindications and cautions, refer to the New Zealand Formulary: www.nzf.org.nz/nzf_10057 and the United Kingdom Medical Eligibility Criteria: www.fsrh.org/standards-and-guidance/external/ukmec-2016-digital-version/


The effectiveness of levonorgestrel implants is reduced when people are also taking hepatic enzyme-inducing medicines, 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.¹²

 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”: www.bpac.org.nz/2019/contraception/oral-contraceptives.aspx 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.^{3,9} Although bleeding patterns may settle after this time, the pattern within the first three months of implant insertion is often predictive of future bleeding.³ 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.⁹ The remainder of patients experience

other patterns such as heavy bleeding or bleeding every two weeks.⁹ If bleeding is persistent or problematic, it may require pharmacological management; a combined oral contraceptive is usually the first-line treatment to reduce uncontrolled bleeding in patients using a levonorgestrel implant.¹³

 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”: www.bpac.org.nz/2019/contraception/depot.aspx and “FSRH clinical guidance: problematic bleeding with hormonal contraception”. Available from: www.fsrh.org/standards-and-guidance/documents/ceuguidanceproblematicbleedinghormonalcontraception

Weight gain and mood changes unlikely

Levonorgestrel implants are not associated with changes in weight.⁵ Some people may experience mood changes, but observational studies suggest less than 10% discontinue use due to this.⁵

Table 1: Recommendations for additional contraception after switching to the levonorgestrel implant. Adapted from FSRH, 2014^{*3}

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 seven of menstrual cycle onwards [†]	Use condoms for seven days
Combined oral contraceptives (COCs)	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
Progestogen only pills (POPs) or levonorgestrel IUD	Any time	Use condoms for seven days
Copper IUD	First five days of menstrual cycle	No additional precautions required
	At other stages of menstrual cycle or in patients with amenorrhoea	Use condoms for seven days. Leave the IUD <i>in situ</i> for seven days if unprotected intercourse occurred in the seven days prior to insertion of the implant.
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

* For further information, see: www.fsrh.org/standards-and-guidance/documents/cec-ceu-guidance-implants-feb-2014/

† Pregnancy must first be ruled out if unprotected sex has occurred

Intrauterine devices

An intrauterine device (IUD) provides contraception by preventing fertilisation and preventing implantation of fertilised eggs.⁵ They are effective for three to ten years, or potentially longer, depending on the type (see: Table 1 and “Extended use is possible in some cases”).⁶

Table 2: Fully subsidised IUDs available in New Zealand⁶

Indicated duration of use*	
Copper	
Choice Load 375	Five years
Choice TT380 short	Five years
Choice TT380 standard	Ten years
Levonorgestrel	
Mirena (52 mg)	Five years
Jaydess (13.5 mg)	Three years

* Also see “Extended use is possible in some cases”

Inserting an IUD

IUDs are best fitted by an experienced practitioner, e.g. who inserts an IUD at least once a month, as the risk of perforation and subsequent expulsion are lower and patients typically experience less discomfort.⁵

Assess for STIs: A STI check, and testing if necessary, should be undertaken prior to inserting an IUD. If the patient is asymptomatic, an IUD can be inserted prior to swab results being available, provided they can be promptly contacted if they have a positive result.¹⁸ STIs can usually be treated without the need for removal of the IUD.^{17, 18} Antibiotic prophylaxis for STIs prior to IUD insertion in asymptomatic patients is not justified.¹⁷ In patients with symptoms or signs suggestive of a STI, investigation and treatment of any infection should take place before insertion of an IUD.¹⁷

Timing of insertion: Patients who have a levonorgestrel IUD 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: www.nzf.org.nz/nzf_4230

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.¹⁷

Two levonorgestrel IUDs are now available without restriction

From 1 November, 2019, subsidised levonorgestrel IUDs are:¹⁴

- A 13.5 mg device (Jaydess), indicated for contraception and effective for three years
- A 52 mg device (Mirena), indicated for contraception (also other indications, see below) and effective for five years

Clinicians may be familiar with the use of Mirena as previously it has been available funded with Special Authority approval for the treatment of heavy menstrual bleeding, however, it was not funded solely for use as a contraceptive. Jaydess has not previously been funded. Jaydess is a slightly smaller device than Mirena and insertion may be easier and less painful for patients.* However, if patients choose to continue with these contraceptive options, Jaydess will require more frequent procedures for removal and replacement.^{15, 16} For either device, insertion is successful on the first attempt in almost all patients.¹⁵

Both devices are similarly effective as contraceptives.¹⁷ In addition to use as a contraceptive, Mirena is also indicated for the treatment of heavy menstrual bleeding, endometriosis,[†] or to provide protection against endometrial hyperplasia for patients using menopausal hormone therapy.^{6, 14, 17}

* Costs associated with insertion and removal of levonorgestrel IUDs are not covered by the funding.

† Unapproved indication.

Removal: There is no delay in return to fertility after removal of an IUD.¹⁷

When should IUDs not be used?

Copper or levonorgestrel IUDs should not be inserted in patients with:¹⁹

- Distortions of the uterine cavity, either anatomical or due to uterine fibroids; patients who have previously had a caesarean section may use an IUD¹⁷
- 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^{11, 19}
- Endometrial, ovarian or cervical cancer; consultation with the patient's oncologist is recommended.
- Gestational trophoblastic disease, until levels of β -human chorionic gonadotropin (β hCG) are undetectable; oral contraceptives are preferred^{11, 20}













A levonorgestrel IUD is contraindicated in patients with breast cancer; it might be considered with caution if cancer has been in remission for more than five years and a copper IUD cannot be used.¹⁹

Copper IUDs may initially cause heavier bleeding, levonorgestrel IUDs 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 and most people report being satisfied with this contraceptive method.²¹ 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 subsidised levonorgestrel IUDs 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

Table 3: Contraceptive advice after insertion of a levonorgestrel IUD if switching from another contraceptive method. Adapted from FSRH, 2015^{6, 17}

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	In the second week or longer of taking active ingredient tablets until day 1 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 interval	
POP	Any time	
Levonorgestrel implant	Up to three years post-insertion*	
	After three years post-insertion*	
Medroxyprogesterone acetate injections	Within 14 weeks of previous injection	
	After 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 IUD

* 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.

menstrual bleeding.^{6, 16} In one clinical trial directly comparing both levonorgestrel IUDs, approximately 13% of patients using Jaydess reported amenorrhoea after three years' use, compared with 24% of patients using Mirena.¹⁵ For both IUDs, the greatest reductions in bleeding occur in the first three to six months.¹⁵

IUDs can be used with tampons and menstrual cups; evidence suggests there is no increased risk of expulsion.¹⁷ When removing a menstrual cup, care needs to be taken that the IUD strings are not inadvertently pulled on, thereby causing the IUD to be pulled out.

Many patients experience increased menstrual pain and cramps

Changes in menstrual pain and cramps are common after insertion of an IUD. One study reported that three months after having a device inserted, approximately one-third of people using a levonorgestrel IUD 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.²¹ Some people using a levonorgestrel IUD experience improvements in dysmenorrhoea.¹⁷

Adverse effects associated with insertion of an IUD are uncommon

Insertion carries a small risk of uterine perforation and vasovagal reaction

Uterine perforation occurs at a rate of approximately 1–2 per 1000 insertions of IUDs; rates are lowest when insertion is performed by an experienced practitioner.²² The risk is increased to approximately 6 per 1000 insertions for patients up to 36 weeks post-partum or who are breastfeeding.²² 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.^{23, 24} Some patients may have mild vasovagal reactions, however, severe vasovagal reactions are rare, with a reported incidence of approximately one in 500 patients.²⁵

The risk of pelvic inflammatory disease is very low

Research shows that placement of an IUD is associated with a small increase in the risk of pelvic inflammatory disease (0.5% of insertions), but the risk is only increased within the first 20 days after insertion.¹⁸ Screening for STIs before IUD insertion does not reduce the risk of pelvic inflammatory disease.^{17, 26}

IUD expulsion occurs in a minority of patients

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An IUD should be removed if pregnancy occurs

In the unlikely event that a patient using an IUD 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 IUD in place increases the risk of complications such as spontaneous abortion and preterm delivery.²⁷ Although there is an overall reduced risk of ectopic pregnancy while using an IUD, if a pregnancy does occur, it is estimated that in up to half of cases this will be ectopic.¹⁷ Therefore an early ultrasound scan is required.¹⁸

Extended use of an IUD is possible in some cases

Clinical guideline groups in the United Kingdom and United States recommend that use of some IUDs can be extended (Table 4), without affecting contraceptive efficacy.^{17, 28} This recommendation does not apply at present to nulliparous patients aged <25 years as this patient group was generally not included in studies.²⁹ 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.¹⁷

Table 4: Extended durations of effectiveness for subsidised IUDs for patients aged >25 years^{17, 30}

Device	Approved duration of use	Possible extended duration
Copper IUDs		
Choice Load 375	5 years	10 years
Choice TT380 short	5 years	Extended duration not recommended due to lack of evidence
Choice TT380 standard	10 years	12 years
Levonorgestrel IUDs		
Mirena	5 years	7 years
Jaydess	3 years	Extended duration not recommended due to lack of evidence

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