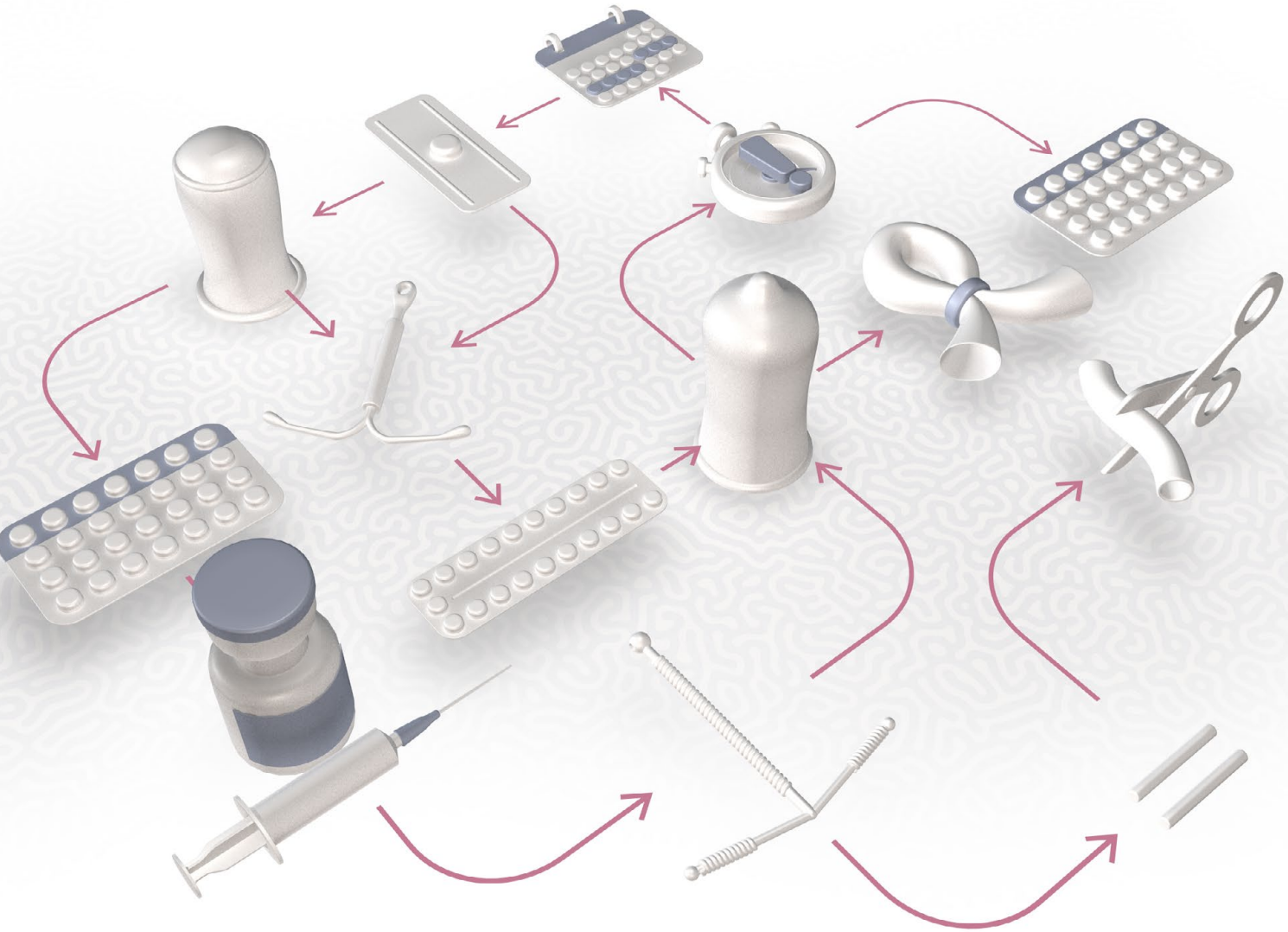
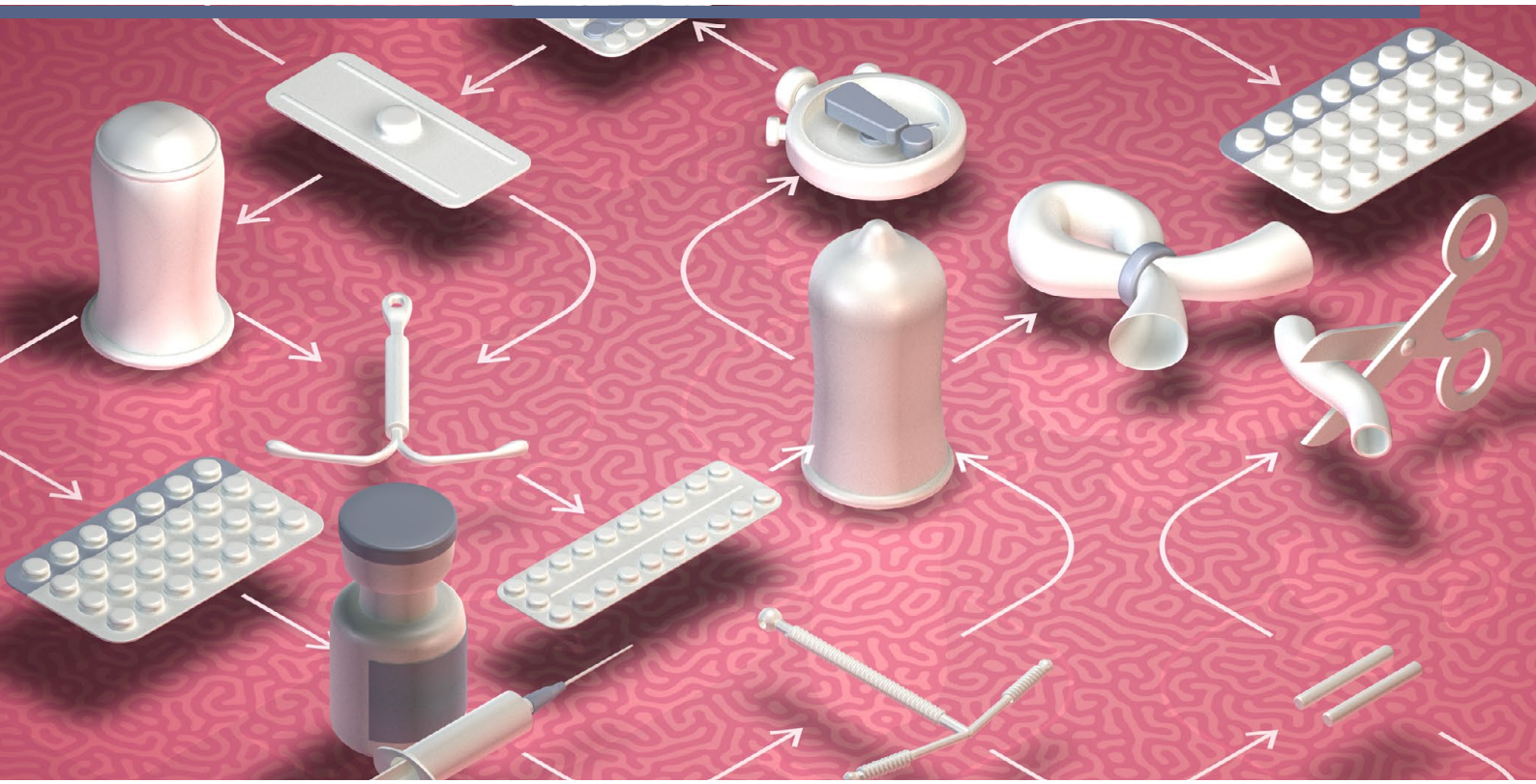
Contraception: which option for which patient?



Prescribing contraception is a core part of primary care practice. A patient's co-morbidities and concurrent medicines can influence the balance of risks and benefits and therefore the choice of contraceptive. Key changes in guidelines in recent years include recommending long-acting contraceptive methods, such as the levonorgestrel implant or intrauterine contraceptives (IUCs) for use in all ages, and using "the pill" in a continuous regimen.

CONTENTS



Contraception: which option for which patient?

Prescribing contraception is a core part of primary care practice. A patient's co-morbidities and concurrent medicines can influence the balance of risks and benefits and therefore the choice of contraceptive. Long-acting reversible contraceptive methods, such as the levonorgestrel implant or intrauterine contraception, are recommended first-line at any age. For those taking "the pill", continuous use is encouraged as it reduces the risk of unintended pregnancy and symptoms associated with the hormone-free interval; monthly withdrawal bleeding is not medically necessary.

KEY PRACTICE POINTS:

- Appropriate contraceptive options vary depending on the specific needs, preferences and co-morbidities of each patient. A funded option is available for everyone.
- Long-acting reversible contraceptives (LARC) are recommended as a first-line choice for people of all ages, including adolescents
- Combined oral contraceptive regimens can be tailored: advise patients that withdrawal bleeds are not necessary and extended use is safe and effective
- Clinicians should ensure that people of all ages recognise the need for condoms to protect against STIs, even when other forms of contraception are used
- Contraception is needed until patients reach menopause or age 55 years

This article is the first in a series on prescribing contraceptives in primary care. For further information on specific contraceptive methods, see the accompanying articles in this series:

- **Condoms: advising on the options**
- **Oral contraceptives: selecting a pill**
- **Depot medroxyprogesterone acetate injections: an intermediate option**
- **Long-acting reversible contraceptives: implants and IUCs**

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**
- New Zealand guidance recommends a long-acting reversible contraceptive first-line, including for adolescents and nulliparous people
- The recommended dosing interval for DMPA is now 13 weeks; this is an evidence-based change from the previously recommended 12-week dosing interval. Injections can be administered up to seven days late (i.e. a dosing interval of 14 weeks) without the need for additional contraception.
- Addition of the World Health Organization's definition of fully breastfeeding
- 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)

Counselling patients on contraception: it's better out in the open

Patients may find discussing contraception and the prevention of sexually transmitted infections (STIs) a sensitive or awkward topic, as it touches on issues such as their sexuality and sexual practices, as well as relationship issues and their future plans for children. In addition, their views and behaviours can be influenced by social, family, religious or cultural factors. However, there is much to be gained and little to be lost when patients and healthcare providers have open discussions about contraception and prevention of STIs. The goal of counselling patients about contraception is to ensure they are using a safe, effective option which is the most appropriate for their clinical needs and preferences. Clinicians should be aware that transgender patients may still require contraception even when using gender affirming hormone treatment (see: "Contraception in transgender patients").

For further information on discussing sex and contraception with younger people, see:

- "Contraception in early adolescence": **www.bpac.org.nz/bpj/2011/april/contraception.aspx**
- "Let's talk about sex": **www.bpac.org.nz/bpj/2009/april/sexhealth.aspx**

Evidence suggests people are interested in hearing more

The most commonly used form of contraception in New Zealand is the oral contraceptive pill.[1, 2] However, data from international surveys and focus groups in New Zealand show that people are eager to know more about the contraceptive options available to them, and that many would be interested in trying other options, such as long-acting reversible contraceptives, if they had information about them.[3, 4]

A variety of contraceptive options are available

Methods of contraception available* in New Zealand include:

- Condoms; external (funded) and internal (not funded) varieties – ensure that patients of all ages recognise the need for condoms to protect against STIs, even when other forms of contraception are used[5]
- Long-acting reversible contraceptives (LARCs); progestogen implants, copper and levonorgestrel (progestogen) intrauterine contraceptives (IUCs)
- Depot medroxyprogesterone acetate (DMPA) injections†
- Oral contraceptives; combined and progestogen-only formulations
- Sterilisation options; vasectomy or tubal ligation
- Emergency contraception
- Natural family planning

* Diaphragms and vaginal rings are not funded in New Zealand

† 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 an injection every 13 weeks[6]

Depending on co-morbidities, other prescribed medicines or recent pregnancy, some options may be inappropriate due to a high risk of adverse effects (Table 1).

Patients may base their preference for a contraceptive method on factors such as effectiveness (Table 2), adverse effects and risks, ease of use, future pregnancy plans, cost or particular symptoms they wish to manage. For example, some people may want greater cycle control, relief from menstrual pain or heavy menstrual bleeding, while others may be concerned about age-related adverse effects, such as venous thromboembolism.

Table 1: Recommendations regarding the likely benefits and risks of different contraceptive options. Adapted from New Zealand Aotearoa's guidance on contraception (2020) and the Faculty of Sexual and Reproductive Healthcare, United Kingdom.[6, 11]

	Oral contraceptives		Depot medroxyprogesterone acetate injections (DMPA)	Long-acting reversible contraceptives		
					IUCs	
Patient characteristics	Combined oral contraceptives (COCs)	Progestogen-only oral contraceptives (POPs)		Levonorgestrel implant	Levonorgestrel IUS	Copper IUD
Younger (e.g. age < 18 years) or nulliparous			a			
Aged ≥ 50 years or over[6]	b		b			
Taking hepatic-enzyme inducing medicines, e.g. some anticonvulsants						
At increased risk of venous thromboembolism (VTE)	c					
With, or at increased risk of, cerebro- or cardiovascular diseases						
Hypertension			d			
Smoking in patients aged over 35 years	e					
Valvular heart disease or atrial fibrillation						
Stroke or ischaemic heart disease						
Vascular disease						
With multiple cardiovascular risk factors						
With diabetes and complications, or diabetes for > 20 years						
Migraine with aura						
Post-partum						
Immediately						
< 4 weeks	g				f	f
4 - 6 weeks	g					
> 6 weeks						
Following termination of pregnancy or spontaneous abortion					h	h
Current or previous breast cancer		i	i	i	i	

Benefits are likely to outweigh risks | Risks may outweigh benefits for some patients, see footnotes for details | Not recommended, risks are likely to outweigh benefits

a. Medroxyprogesterone acetate injections are associated with a decrease in bone mineral density; other contraceptive options should be considered first in patients aged < 18 years
b. Use in patients aged 50 years and over is not recommended due to an increased risk of venous thromboembolism (COC) or a decrease in bone mineral density (DMPA)
c. For example, personal history of VTE or prolonged immobility due to surgery or disability
d. Risks are likely to outweigh benefits for patients with poorly controlled hypertension, i.e. systolic blood pressure ≥ 160 mmHg or diastolic ≥ 100 mmHg
e. Risk increases with age. Use is generally not recommended in people aged over 35 years who smoke, however, clinicians should consider the patient's overall level of risk when considering the use of COCs in a patient who smokes, rather than relying on a strict age criterion
f. IUCs can be safely inserted within 48 hours of delivery, otherwise insertion should be delayed until after four weeks post-partum
g. COC may be considered from three weeks post-partum if not breastfeeding and no additional risk factors for VTE (e.g. caesarean section delivery, pre-eclampsia, haemorrhage, transfusion at delivery, immobility, BMI ≥ 30 kg/m^2 or smoking)
h. IUCs can be inserted after a first or second trimester termination, but should not be inserted immediately after a termination where sepsis has occurred
i. Should not be used in patients with 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. Any consideration should ideally be discussed with an oncologist.

Table 2: Effectiveness of different contraceptive methods after one year. Adapted from the Faculty of Sexual and Reproductive Healthcare, United Kingdom.[12, 13]

	Number of pregnancies per 1,000 females of reproductive age after one year		Funding status	For further information, see:
	Perfect Use*	Typical Use*		
No contraception	850			
Barrier and short-term options:				
Male condoms	20	130 – 180	●	*"Condoms: advising on the options"*
Female condoms	50	210		
Diaphragm†	60	120		
Spermicide†	180	280		
Oral contraceptives:				*"Oral contraceptives: selecting a pill"*
Combined oral contraceptive (COC)	3	90	●	
Progestogen-only contraceptive (POP)	2	90	●	
Injectable options:				*"Depot medroxyprogesterone acetate injections: an intermediate option"*
Depot medroxyprogesterone acetate injections (DMPA)	2 – 6	60	●	
Long-acting reversible contraceptives:				*"Long-acting contraceptives: implants and IUDs"*
Levonorgestrel implants	< 1		●	
Levonorgestrel IUS	2 – 6		●	
Copper IUD	6 – 8		●	
Non-pharmacological options				"Natural family planning" below
Fertility awareness methods	Varies with method: See Table 3			
Permanent contraceptive methods:				"Sterilisation methods" below
Tubal occlusion/ligation	5		**	
Vasectomy	1 – 2		**	

● Fully funded options available

* Perfect use refers to using the contraceptive exactly as recommended. Typical use is when contraception is not always used consistently or correctly, e.g. forgetting to take a dose of medicine, condom applied incorrectly.

† Diaphragms and spermicide have not been funded in New Zealand for some time. Diaphragms may be available for purchase at some pharmacies. If patients already have a diaphragm they wish to keep using, support is available from Family Planning: **www.familyplanning.org.nz/advice/contraception/diaphragms**

** Some patients may qualify for a tubal ligation or vasectomy performed in the public health system, depending on local eligibility criteria

Contraception is needed until age 55 years or menopause

Patients can cease using contraceptives at age 55 years, as pregnancy is very rare beyond this age even if they continue menstruating.[7] Some patients may discontinue contraceptives earlier if menopause has occurred.[7] A clinical diagnosis of menopause can be made after one year of amenorrhoea; contraception can be ceased at this time for patients aged over 50 years, but is recommended for an additional year in patients aged 40 – 50 years, i.e. for two years after the onset of amenorrhoea.[7]

Increased use of long-acting contraceptives could help reduce disparities

Conventionally, IUCs were most commonly used by women who had completed their families and wished to have a long-term form of contraception. There was some resistance to the idea that an IUC could be an appropriate contraceptive option for younger women and those who had not yet given birth, due to concerns such as ease of insertion. However, there is no clinical basis for this concern, and an IUC should be considered as an appropriate option for almost anyone.[6] The levonorgestrel implant (inserted in the arm) has been funded in New Zealand since 2010, and is the most effective method of contraception available (Table 2). Some clinicians may be less familiar with this method as they do not have experience in placing the implants, but the procedure can be easily learned. Use of a long-acting reversible contraceptive (LARC) is associated with a much lower rate of unintended pregnancy, compared to shorter-acting methods such as oral contraceptives or DMPA injections.[6] In New Zealand, rates of abortion have been declining since the mid-2000s and research suggests that this is due in part to an increased use of LARCs.[2, 8] Reductions have been particularly pronounced in people aged 15 – 19 years, however, rates of abortion are still highest amongst people of Māori ethnicity and people aged 20 – 29 years.[8]

The additional appointment time and repeat visits, or visits to another provider, required for initiating a LARC can be a barrier to patients in terms of convenience and cost.[9, 10] Consider whether there are ways your practice could simplify the process for patients, e.g. by having a clinical staff member trained in insertion and removal techniques, and having a supply of LARCs at the practice (implants and copper intrauterine devices [IUDs] are available on PSO; levonorgestrel intrauterine systems [IUSs] are not). If offering these services at your practice is not possible, patients can be referred to Family Planning or Sexual Health Clinics, if locally available; these services may offer contraception services at a lower cost or for free*. Some PHOs may also offer funding for sexual health or contraception-related consultations; enquire with your PHO.

* Appointments at Family Planning are free for people aged under 22 years. Appointments cost $5 for Community Services Card holders.

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.

Withdrawal bleeds with combined oral contraceptives are not necessary

Combined oral contraceptive (COC) pills were first introduced in New Zealand in the 1960s. They were formulated to mimic the natural menstrual cycle, with three weeks of active hormone tablets followed by one week of placebo tablets at which time a withdrawal bleed usually occurs. However, there is no medical basis for this withdrawal bleed and people taking COCs can be reassured that skipping the hormone-free interval is safe, and is in fact now recommended.[6] Continuous use of hormone pills, rather than stopping and starting, may improve contraceptive effectiveness by reducing the likelihood of missing pills, as well as lessening the consequences of missed pills, e.g. compared with missing pills in the first week of a conventional regimen, thereby extending the hormone-free interval. In addition, bleeding-related adverse effects, such as headache, bloating and abdominal pain, can be avoided, which is likely to improve satisfaction and adherence with this method of contraception.

Any contraceptive can be started six weeks post-partum

If contraception is required after childbirth, any of the available options can be given from six weeks post-partum, including COCs;[6] progestogen-only pills, injections or implants can be used prior to six weeks and IUCs can either be inserted immediately post-partum or after four weeks (Table 1).[6]

It was previously recommended that COCs be avoided for the first six months post-partum if breastfeeding due to potential suppressive effects of ethinylestradiol on milk supply. While the data on COC use and breastfeeding are limited and conflicting, better quality studies investigating breastfeeding performance, i.e. duration, exclusivity and initiation of supplemental feeding, and infant growth, health and development have shown no adverse effects when COCs are started from six weeks post-partum, provided breastfeeding is well established and there are no concerns with the infant's growth.[6] COCs can be initiated at three weeks post-partum in those who are not breastfeeding, provided they do not have additional risk factors for venous thromboembolism.[6]

The lactational amenorrhoea method is an effective form of contraception if fewer than six months post-partum, amenorrhoeic and fully breastfeeding*. This method should not be relied on if the frequency of breastfeeding decreases, e.g. night feeds stopped, supplemental foods started, if

menstruation returns or if the patient is more than six months post-partum.[6]

* Defined as at least 10 – 12 times per day in the first few weeks post-partum, and 8 – 10 times per day thereafter, including at least one night feed.[6] Daytime feedings should be no more than four hours apart, and night-time feedings no more than six hours apart.[6]

Selecting a contraceptive option

Tables 1 and 2 can be used to decide, together with the patient, which types of contraception may be the most appropriate for them; detailed information on each option is available in the accompanying articles in this series:

- Condoms: advising on the options
- Oral contraceptives: selecting a pill
- Depot medroxyprogesterone acetate injections: an intermediate option
- Long-acting reversible contraceptives: implants and IUCs

Natural family planning

The use of fertility awareness to prevent conception may be preferred by people who wish to avoid other methods of contraception for religious or personal reasons. When adhered to strictly these methods can have good efficacy rates (Table 3). However, with typical use, approximately 2 – 23% of people become pregnant within one year, depending on the method used.[6, 17]

Fertility awareness methods rely on monitoring markers of fertility daily, including body temperature, changes in cervical secretions, changes in the cervix and timing of menstruation. Combining multiple markers is more effective than relying on a single marker.[17] Learning the technique can be difficult for some people and may be more complicated for those with irregular cycles.[17] People who have been using hormonal contraception should not rely on fertility markers until they have had a minimum of three regular menstrual cycles.[6]

Key practice points for the use of fertility awareness methods include:[17]

- They should not be used in patients who are taking potentially teratogenic medicines
- They require a high level of patient engagement and in typical use can have high failure rates depending on the method used
- Menstrual irregularities or recent use of hormonal contraception may make determining the fertile window difficult
- Patients wishing to avoid pregnancy should be advised to use other forms of contraception (e.g. barrier methods) unless they are using the sympto-thermal method
- All patients wanting to use a fertility awareness method should be instructed in this method by an expert, such as an educator from Natural Fertility New Zealand: **www.naturalfertility.co.nz**
- Caution patients that smartphone apps that aim to assist users with fertility awareness may be unreliable and should not replace education from an expert

Withdrawal method alone not advised for contraception

Withdrawal is not considered a natural family planning method and should not be used on its own for contraception or instead of condom use or abstinence in patients using fertility awareness methods to avoid pregnancy.[6]

Emergency contraception

Emergency contraception should be offered to patients who have had unprotected sex and do not wish to conceive:[6, 18]

- If no contraceptive method is being used, even if ovulation could be reasonably excluded based on their natural menstrual cycle
- If contraceptive failure occurs, e.g. condom breakage

Table 3: Effectiveness of fertility awareness methods.[6]

Fertility awareness method	Pregnancies per 100 females over first year of use	
	Correct and consistent	Typical
Calendar-based*	5	12
Symptoms-based:		
▪ Two-day method†	4	14
▪ Ovulation method†	3	23
▪ Sympto-thermal method**	< 1	2

* Involves tracking the menstrual cycle to identify the start and end of the fertile period

† Involves monitoring cervical secretions

** Combines basal body temperature, cervical secretions and other signs, e.g. breast tenderness, ovulatory pain

- If two or more active COC pills have been missed in the first week following the hormone-free interval*, or eight or more pills have been missed at other times or in a continuous cycle[19]
- If a POP is missed and intercourse occurs < 48 hours after restarting*
- If more than 14 weeks have passed since a DMPA injection
- In the seven-day period prior to expulsion of an IUC or discovering the threads of an IUC are missing

* Emergency contraception may also be required if patients have vomiting or diarrhoea lasting > 24 hours and have unprotected sex in the following two days if they are taking a POP or seven days if they are taking a COC: see "Oral contraceptives: selecting a pill " for more detail

Two forms of fully funded emergency contraception are available in New Zealand (Table 4). The copper IUD is recommended first-line as it is more effective and has a wider treatment window than the levonorgestrel tablet.[6] However, the tablet may be preferred by patients as it does not require an insertion procedure and is available at pharmacies without a prescription.

Table 4: Fully funded emergency contraceptives.[6, 20]

Emergency contraceptive	Pregnancy rate with correct use	To be used within
Copper IUD	Less than 1%	120 hours (5 days) of unprotected sexual intercourse ***OR*** Up to 5 days after expected date of ovulation
Levonorgestrel 1.5 mg tablet	1 – 3%	72 hours (3 days) of unprotected sexual intercourse*

* Evidence suggests that oral emergency contraceptives are not effective if taken after ovulation has occurred; they may be effective if taken more than 96 hours (four days) after unprotected intercourse, but are not approved for this timeframe

N.B. Emergency contraception providers must be familiar with the Contraception, Sterilisation and Abortion Act 1977 and the Abortion Legislation Act 2020, e.g. all people wishing to access emergency contraception must be able to do so within 48 hours of requesting it.[6] See: **https://www.legislation.govt.nz/act/public/1977/0112/latest/DLM17680.html** and **https://www.legislation.govt.nz/act/public/2020/0006/latest/LMS237550.html**

Contraception in transgender patients

Female to male transgender or gender diverse patients may require contraception, unless they have undergone surgical procedures which result in infertility. Gender affirming hormone treatment should not be relied on as a method of contraception as pregnancies can still occur in female to male transgender patients using testosterone; discussion with an endocrinologist involved in the patient's care is recommended.[14]

DMPA injections, progestogen implant, or copper or progestogen IUCs may be preferred options as they do not interfere with the process of masculinisation, however, IUC insertion may be more difficult than in other patients due to cervical atrophy associated with testosterone treatment.[15, 16] A short course of vaginal oestrogen may help with discomfort during insertion for these patients.[6] Contraceptive options more likely to result in amenorrhoea, such as DMPA or a progestogen IUC, may be preferred by some patients.[16]

For further information on contraception in transgender patients, see:

- The Faculty of Sexual and Reproductive Healthcare, UK: **www.fsrh.org/standards-and-guidance/documents/fsrh-ceu-statement-contraceptive-choices-and-sexual-health-for/**
- The New Zealand Formulary: **https://www.nzf.org.nz/nzf_70819**

The copper IUD should be considered as the first-line option whenever emergency contraception is needed, as it is the most effective method of emergency contraception and effectiveness is not altered by BMI or the use of enzyme-inducing medicines.[6] A copper IUD can be inserted either up to five days following unprotected sexual intercourse or up to five days after the expected date of ovulation. The copper IUD can be left in place for ongoing contraception, or removed once pregnancy is excluded, e.g. at the next menstrual period.[6]

Levonorgestrel emergency contraception may be less effective in patients weighing over 70 kg or with a BMI greater than 26 kg/m^2, with rates of pregnancy of up to 5% observed in some, but not all, studies.[21] For these patients, prescribing two 1.5 mg tablets is recommended if a copper IUD is not preferred or accessible, however, this is an unapproved dose.[6, 20] The effectiveness of levonorgestrel emergency contraception is also reduced in patients taking enzyme-inducing medicines; these people should be offered a copper IUD.

After use of levonorgestrel emergency contraception, patients should expect a change in menstruation, typically occurring earlier and heavier than expected.[18] Other adverse effects include headache, nausea, dizziness and, less commonly, vomiting.[20] If vomiting does occur and it is within two hours of administration, a repeat dose or use of a copper IUD is recommended.[20] There is limited evidence as to whether taking levonorgestrel emergency contraception with food, or prior administration of antiemetic medicines, can help reduce nausea.[22] However, these approaches are widely recommended and may benefit some patients. Some evidence suggests that if levonorgestrel emergency contraception fails there may be a higher risk of ectopic pregnancy, however, this has not been consistently observed in studies and the absolute rate is very low.[18]

Offer a pregnancy test 28 days after the last instance of unprotected sexual intercourse.[6]

Review contraception use and discussion options if the patient is not using regular contraception; recommend a more reliable method if adherence is an issue.[6]

Sterilisation methods

Discussion about sterilisation should cover issues such as life stage, future plans and relationship stability and ensure that both partners have an opportunity to express any questions or concerns. Information should be provided on other contraceptive options for the female partner that would offer a similar level of effectiveness, such as an implant or IUC; also consider if the patient has a history of menstrual difficulties that may reoccur when their current contraceptive is stopped, and menstruation resumes after sterilisation.

Sterilisation options include vasectomy and tubal ligation or occlusion. Tubal ligation or occlusion is carried out by laparoscopy or laparotomy and is typically performed under general anaesthesia. Vasectomy is typically performed with a local anaesthetic.

Some patients may be eligible for a sterilisation procedure performed in the public health system, however, most patients will need to seek private treatment. Vasectomies are also performed in some primary care clinics. Some patients may be eligible for assistance from Work and Income (WINZ) to assist with the cost of a vasectomy (see: **www.workandincome.govt.nz/eligibility/health-and-disability/vasectomies.html)**.

Sterilisation options are not intended to be reversed. Reversal procedures may be possible, depending on the technique used, but are more complex than the initial sterilisation procedure and may not be successful.

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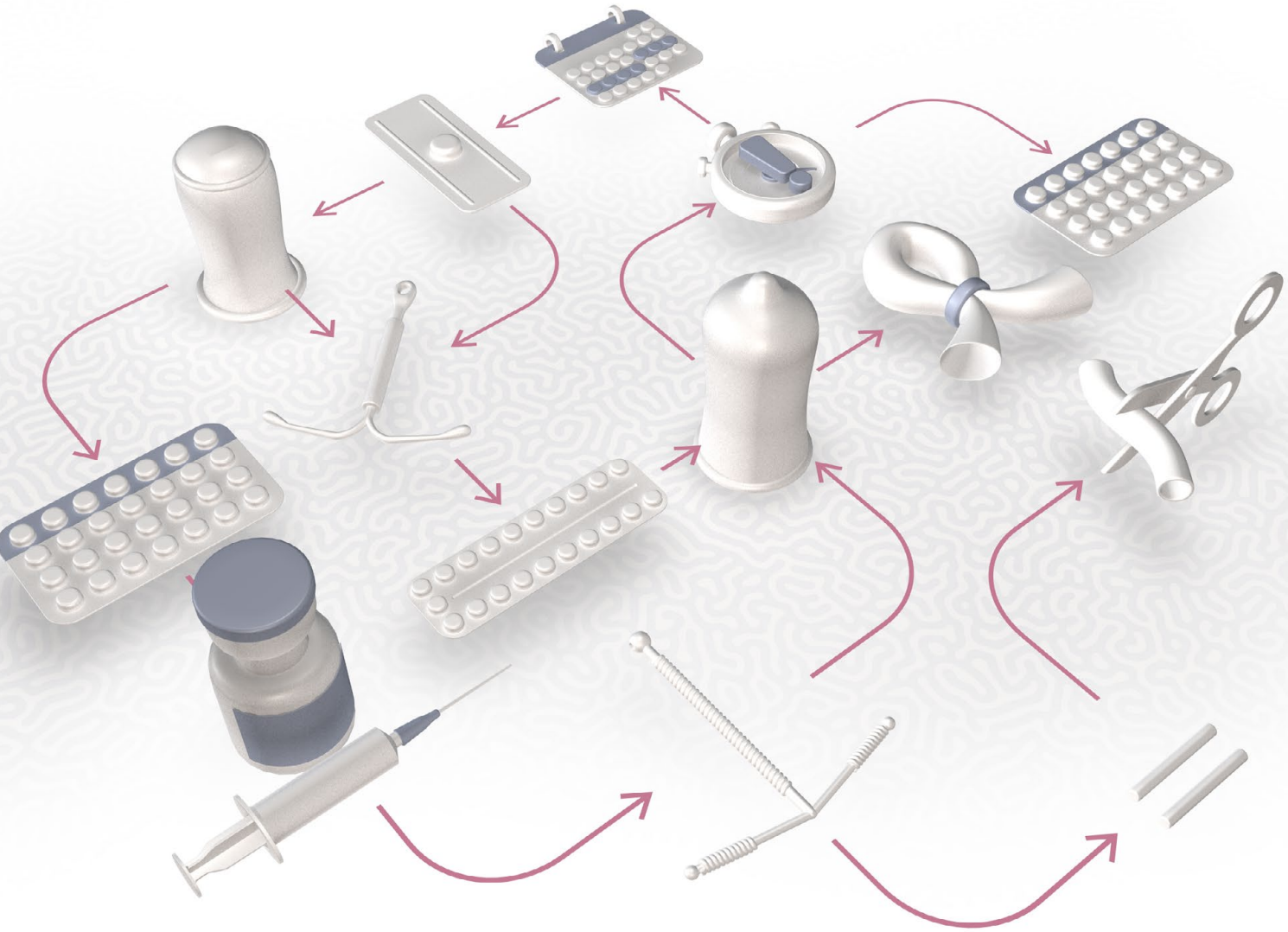

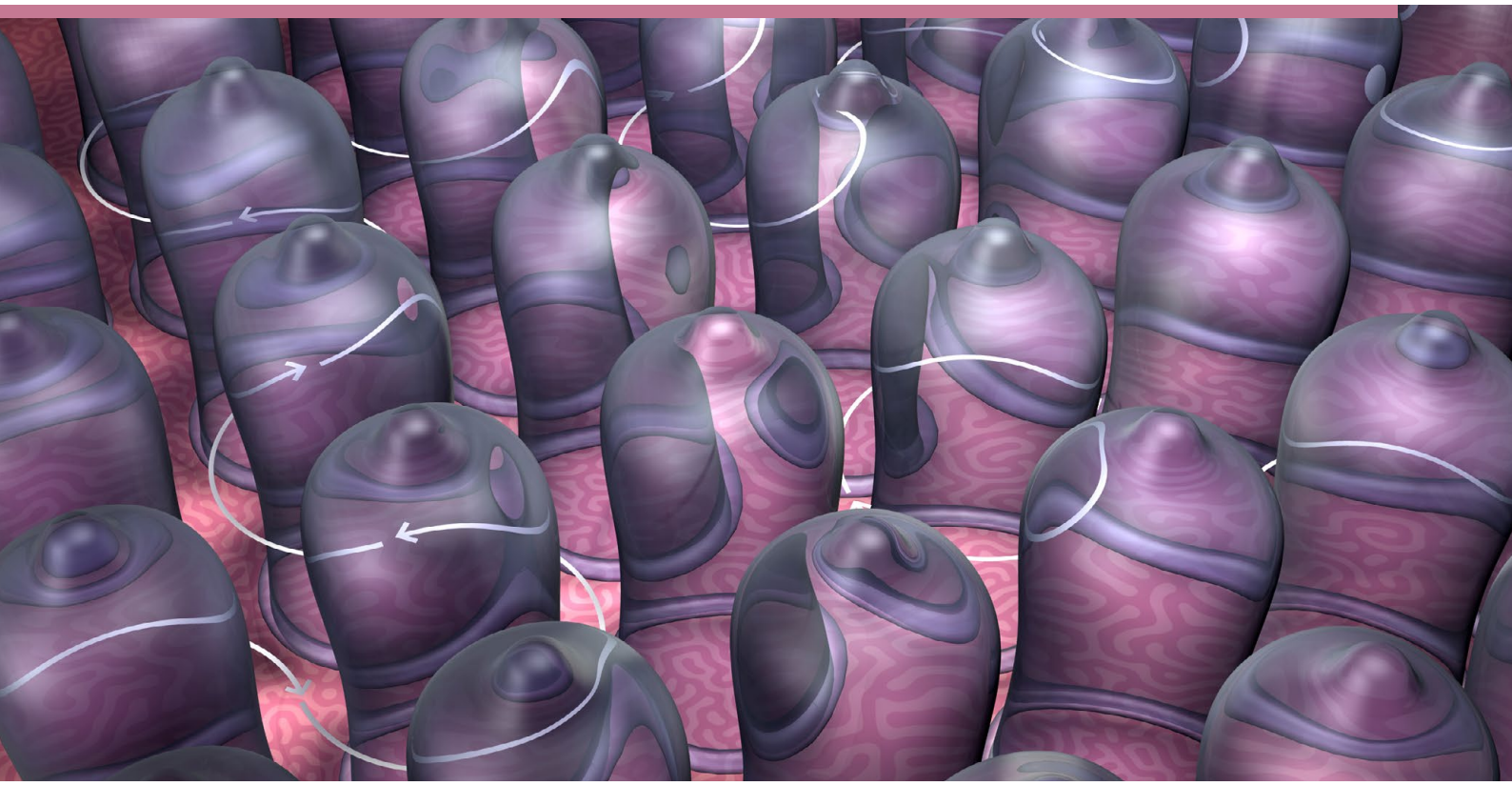

Condoms: advising on the options

Condoms are the only form of contraception that protects against both sexually transmitted infections (STIs) and unplanned pregnancy. There is a selection of funded condoms available in New Zealand and some patients may require guidance to ensure correct and consistent use.

KEY PRACTICE POINTS:

- If external (male) condoms are used correctly on every occasion of sexual intercourse over a year the rate of pregnancy is approximately 2%; however, typical use results in a yearly rate of pregnancy of 18%
- If used correctly, all types of condoms are effective at preventing transmission of most STIs, including HIV, gonorrhoea, chlamydia and hepatitis B
- Condoms should be routinely and widely offered in primary care to ensure equitable access
- A variety of external latex condoms are fully funded in New Zealand
- Latex-free condoms are available, but not funded; however, these products should only be necessary in a small number of people with latex allergy (approximately 4% of the general population)
- Internal (female) condoms are available, but not funded; there is an approximately 5% rate of pregnancy with correct use on every occasion of sexual intercourse over a year, however, typical usage results in a yearly pregnancy rate of 21%

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**
- The failure rate of external (male) condoms with typical use is now estimated to be 18% (previously 13%)
- Table of funded external condoms updated
- The maximum number of 53 mm, 56 mm and 60 mm width condoms that can be prescribed all-at-once or available via PSO has decreased from 144 to 60

The benefits of regular condom use

The first external (male) condoms were developed in the 16th century to slow the spread of syphilis.[1] Originally these were bespoke and made from linen or animal gut,[1] but in the twentieth century mass production resulted in a variety of condom sizes, shapes, colours, flavours and thicknesses. The majority of external condoms are constructed from latex, although they may be made from other materials including polyurethane, polyisoprene and nitrile.[2]

Recommend condoms widely to prevent the spread of STIs

Condoms are the only method of contraception that protects against sexually transmitted infections (STIs). They are often used in combination with another contraceptive to prevent STI transmission and to further reduce the risk of an unintended pregnancy.

The advantages and disadvantages of external condoms:[2]

Advantages	Disadvantages
■ Protect effectively against many STIs ■ Do not affect fertility ■ Do not cause hormonal-related adverse effects ■ May result in sex lasting longer, due to decreased sensitivity ■ Provide fetal protection against STIs, if used during pregnancy	■ Need to be stored in an easily accessible location ■ Breakage or slippage may occur requiring emergency contraception ■ Incorrect use may result in pregnancy ■ May be uncomfortable if an inappropriate size is used ■ The sensation of sex may be dulled ■ Latex-free condoms (not funded) are required if either partner has a latex allergy

The effectiveness of external condoms

Pregnancy occurs in approximately 2% of females when external condoms are used correctly as the sole form of contraception during every occasion of sexual intercourse over one year.[3] However, condoms are often not used consistently or correctly, therefore typical usage results in 18% of females becoming pregnant each year that condoms are used.[3]

Condoms substantially reduce the risk of STI transmission occurring through discharge to or from the penile urethra during vaginal or anal sex, e.g. HIV, gonorrhoea, chlamydia and hepatitis B.[2] Dermal and oral transmission of STIs, e.g. herpes and human papillomavirus (HPV), is reduced, but not eliminated through the regular use of condoms as they may not cover all infectious areas.[2]

Recommending the most appropriate condom

Ensuring consistent and correct use are the most important considerations when providing patients with condoms. All funded condoms available in New Zealand are made from latex and are pre-lubricated. There are differences in the width, thickness and length of funded condoms and some patients may require guidance on these issues (Table 1). Condoms made from isoprene (for people with latex allergy – see below) and textured condoms are available over-the-counter from a variety of retail outlets and online stores but are not funded.

Advising patients on the size and type of condom

The 56 mm condoms are the most commonly prescribed size in New Zealand.[6] However, due to variations in penile size,[7] this width of condom may not be appropriate for all. The length and thickness of some brands of condom does vary slightly, however, this is unlikely to be a significant issue for fit or protection in most cases.

Offer patients a selection to try first

All fully funded condoms in New Zealand are also available on Practitioner's Supply Order (PSO). It is recommended that a selection of condoms be available in the practice and offered the first time a prescription for condoms is provided. The prescription can be written with a default option but with instructions for another width or brand of condom to be dispensed if the patient wishes, following discussion with a pharmacist, e.g. "as specified or directed by patient preference". Filling the prescription can be delayed until the preferred condom size has been determined. If a previous prescription for condoms has been provided, ask if the fit was appropriate.

N.B. From 1 March, 2020, the maximum number of 53 mm, 56 mm and 60 mm width condoms that can be prescribed all-at-once or available via PSO was decreased from 144 to 60 to reduce wastage.[5] The maximum number of 49 mm condoms that can be prescribed all-at-once or available via PSO is 144.[4]

Additional lubrication is not routinely required with condom use

All funded condoms in New Zealand are pre-lubricated; there are no separate lubricant products for use with condoms that are funded. There is insufficient evidence to recommend the routine use of extra lubrication for vaginal intercourse.[8] However, additional lubrication may be helpful where there is a history of condom breakage or irritation.[8] There is some evidence to suggest that extra lubrication may help to reduce the risk of condom breakage during anal intercourse.[8] Inform patients that adding lubricant inside the condom or to the penis before using the condom increases the risk of slippage.[3]

Table 1: Selection guide for fully funded condoms in New Zealand, as of February, 2024.[4, 5]

Condom width	Brand	Thickness	Length	Additional features
49 mm	Moments	0.07 mm	160 mm minimum	–
53 mm	Moments	0.05 mm	160 mm minimum	–
		0.07 mm	160 mm minimum	Unflavoured (no colour) or with strawberry flavoured lubricant (red coloured condom) or chocolate flavoured lubricant (brown coloured condom)
56 mm	Moments	0.06 mm	160 mm minimum	–
		0.08 mm	160 mm minimum	No colour or coloured red
	Gold Knight	0.05 mm	*Information not available*	–
		0.07 mm	180 mm	Strawberry or chocolate flavoured lubricant
60 mm	Gold Knight XL	0.07 mm	*Information not available*	–

Water-based, e.g. K-Y Jelly, or silicone-based, e.g. Durex Perfect Glide, lubricants should be used if additional lubrication of latex condoms is required.[8] Oil-based lubricants, e.g. petroleum gel (Vaseline), should not be used with latex condoms as they increase the risk that the condom will break.[8] Lubricating substances such as cooking or coconut oil or body moisturisers should not be used with condoms.[2]

The frequent use of spermicidal condoms is not recommended

There is no evidence that condoms with added spermicide provide any additional protection against pregnancy or STIs than non-spermicidal condoms.[3] Nonoxynol-9, a surfactant that disrupts cell membranes, is the most common spermicide.[8] The use of condoms lubricated with nonoxynol-9 is not recommended as excessive use, i.e. several times per day, increases the risk of urinary tract infections (UTIs) and vaginal or anal irritation which may increase the risk of HIV infection and other STIs.[3] However, using condoms with nonoxynol-9 is preferable to not using condoms at all.

Thicker condoms are unlikely to provide better protection against STIs

Limited evidence suggests that using a thicker condom does not reduce the risk of a condom breaking. A study involving 283 male couples in England found that the failure rate for condoms 0.074 mm thick was 2.5%, compared to a failure rate of 2.3% for condoms 0.112 mm thick.[9] The majority of the funded condoms in New Zealand are 0.07 mm thick, however, the Moments brand has a 0.08 mm thickness option and can be prescribed if there is a history of condom breakage.

Latex allergy is uncommon and non-latex condoms are generally not indicated

Condoms users may report dermal adverse reactions involving irritation of the penis or vagina or redness, rash and/or swelling of the groin or thighs.[2] Mild symptoms may be avoided by using a water or silicone-based lubricant to reduce friction and irritation, or by trialling another brand of condom.[2] When discussing potential adverse reactions to condoms, consider if the symptoms may be caused by a STI and whether a sexual health check is appropriate.

Most people with latex allergy will already be aware of an allergy through previous reactions, e.g. when using latex gloves or dressings or inflating a balloon.[2] Severe latex allergy, e.g. systemic urticaria, dizziness, difficulty breathing or loss of consciousness, is extremely rare; the worldwide prevalence of latex allergy of any severity is estimated to be 4% in the general population, with higher rates in groups who are regularly exposed, e.g. health workers who wear latex gloves.[3, 10] Latex allergy can be managed by using non-latex external condoms or internal condoms (see below); neither of these options are funded.

Non-latex condoms are indicated while using vaginal creams for fungal infections

Latex condoms should not be used at the same time as vaginal creams for fungal infections, e.g. clotrimazole, miconazole and

nystatin, as the condom may be degraded by ingredients in the base of the cream.[10–12] Abstinence from sex or the use of non-latex condoms can be recommended while using these creams.

Correct use is essential for condoms to be effective

Key points to cover when discussing the correct use of condoms include:

- Checking the expiry date
- Inspecting the packet for tears and opening it carefully
- Applying the condom correctly, e.g. checking it is the right way up before applying

Detailed instructions on the correct use of condoms are provided with product packaging and Family Planning has instructions available from: **www.familyplanning.org.nz/advice/contraception/condoms**

N.B. Condoms should not be flushed down the toilet. Latex condoms degrade naturally in landfill.

Provide advice on what to do if a condom fails

Emergency contraception can be administered up to five days after experiencing condom failure. Treatment options that are fully funded include:[3]

- A copper intrauterine device, which is the most effective method and can be used up to five days after unprotected sex
- The oral emergency contraceptive pill (levonorgestrel) is the most convenient method, however, this is only effective within three days of unprotected sex and may be less effective in patients weighing over 70 kg or with a body mass index greater than 26 kg/m^2

A sexual health check should be undertaken following condom failure if there is a possibility of STI exposure.[8]

Further information on emergency contraception is available from: **"Contraception: which option for which patient"**

Internal condoms

Internal condoms, also referred to as female condoms, are thin pouches that are inserted into the vagina prior to sexual intercourse. The condom is held loosely in the vagina by a closed flexible ring at one end while an open ring at the other end allows for penile insertion. Internal condoms are "one size fits all" and the products available in New Zealand are generally made from a nitrile polymer and are latex-free.[13] Their use has been promoted among sex workers in some countries with high rates of HIV infection as a female-controlled, alternative form of barrier contraception.

Internal condoms are currently not funded in New Zealand and are less accessible than external condoms. They can be purchased from the Family Planning website or a limited number of retail outlets and online stores.

The advantages and disadvantages of internal condoms:[2]

Advantages	Disadvantages
■ The female partner controls the use of the condom ■ They can be inserted up to eight hours prior to sex ■ They have a soft, moist texture that feels more "natural" than latex and does not dull the sensation of sex ■ Water, silicone or oil-based lubricants can be safely used with latex-free condoms ■ They do not need to be removed immediately after ejaculation ■ The outer ring may provide additional stimulation	■ Not funded in New Zealand ■ Less effective at preventing pregnancy than external condoms ■ More often used incorrectly than external condoms ■ Slippage may occur requiring emergency contraception ■ Insertion may need to be practiced ■ May be uncomfortable for some people

Internal condoms are less effective at preventing pregnancy than external condoms

Pregnancy occurs in approximately 5% of females when internal condoms are used correctly as the sole form of contraception during every occasion of sexual intercourse over a year, compared to 2% with external condoms.[3] However, internal condoms may not be used consistently or correctly, therefore typical usage results in 21% of females becoming pregnant each year that internal condoms are used, compared to 18% for external condoms.[3]

Data on STI prevention is limited

Internal condoms reduce the risk of contracting STIs, including HIV.[2] However, due to a lack of studies it is not possible to directly compare the effectiveness of internal condoms and external condoms for STI prevention.

Using internal condoms correctly

Internal condoms are relatively easy to use, although it is recommended that patients practice the technique before they are used for the first time.[2] External condoms should not be used at the same time as internal condoms.[8]

Problems encountered with the use of internal condoms may include discomfort following insertion, which may be resolved by tucking the inner ring behind the pubic bone, and noise from friction during use which can be resolved with lubrication.[2]

Detailed instructions of the use of internal condoms are available on page 264 of the World Health Organization family planning handbook, available from: **www.fphandbook.org/sites/default/files/global-handbook-2018-full-web_0.pdf**

Information is also available from Family Planning New Zealand: **www.familyplanning.org.nz/advice/contraception/internal-condoms**

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N.B. Expert reviewers do not write the articles and are not responsible for the final content. bpac^{nz} retains editorial oversight of all content.

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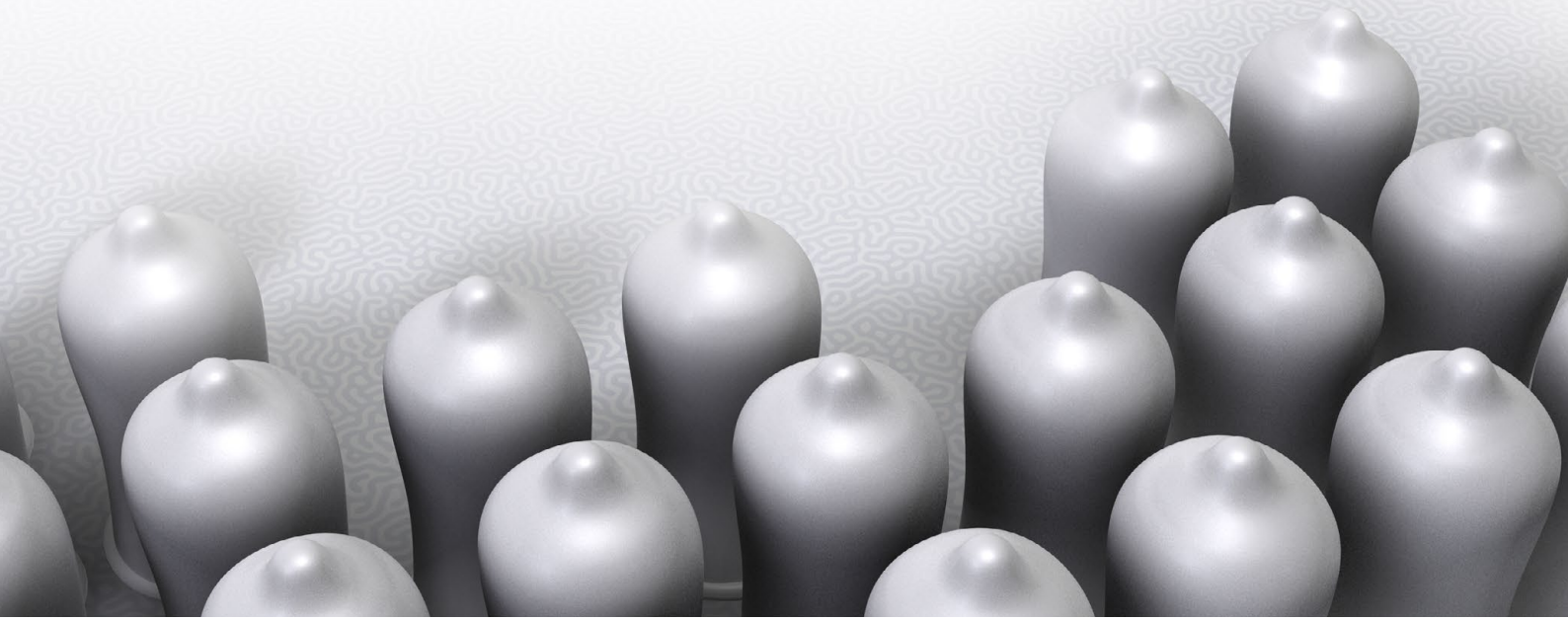

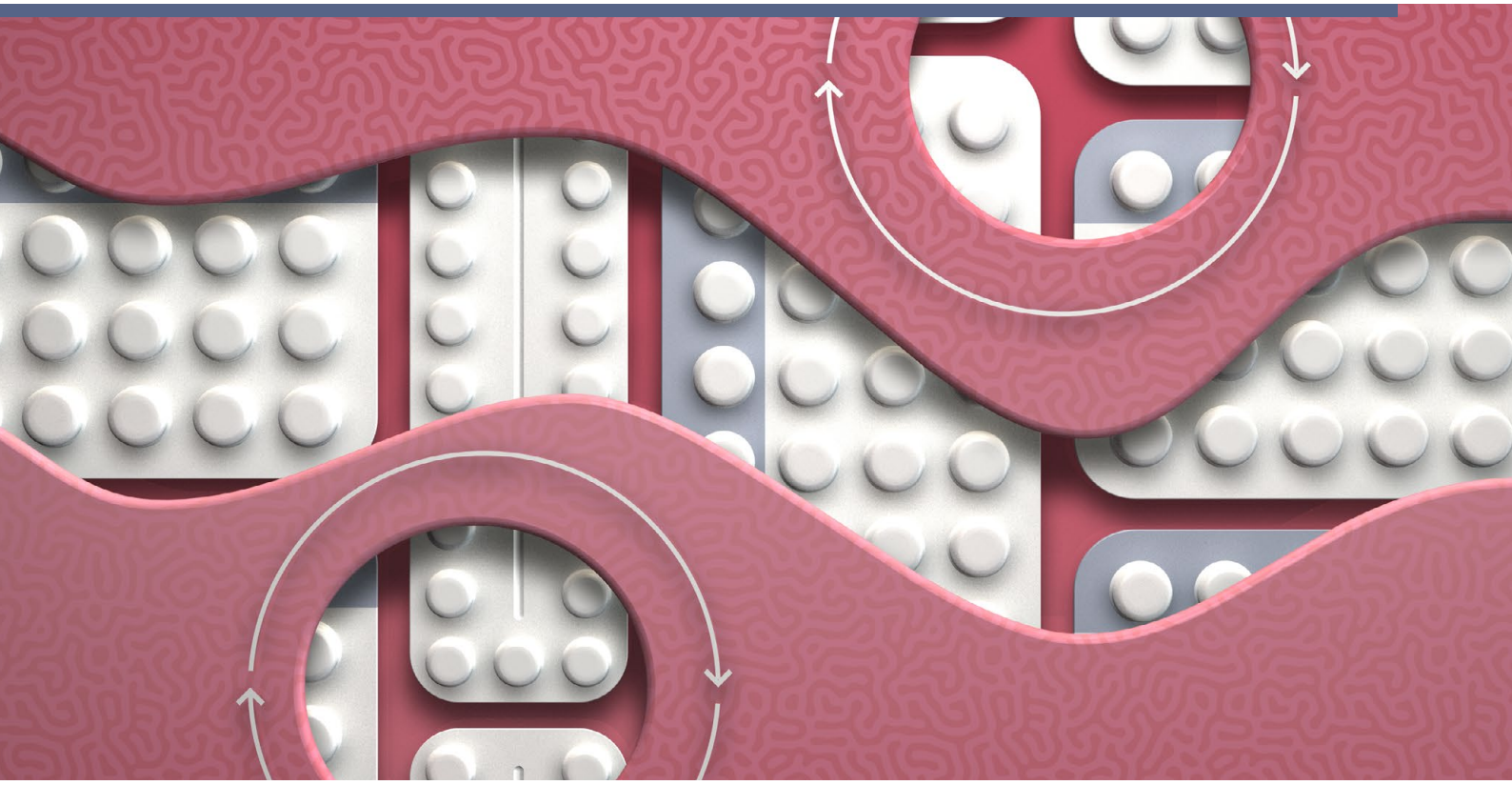

Oral contraceptives: selecting a pill

Oral contraceptive pills are a safe and effective contraceptive method widely used in New Zealand. For patients using a combined ethinylestradiol/progestogen pill, omitting the monthly withdrawal bleed may improve contraceptive efficacy and reduce associated symptoms such as pain, bloating or headache. Progestogen-only contraceptive pills are a suitable alternative for patients with contraindications to oestrogen use, such as those at high risk of venous thromboembolism.

KEY PRACTICE POINTS:

- Combined and progestogen-only oral contraceptives are equally effective for preventing pregnancy; the estimated rate of pregnancy is < 0.3% during the first year if used correctly and consistently, however, with typical use, the rate of pregnancy is 9%
- A reasonable choice for a first-time combined oral contraceptive (COC)-user is a formulation containing ≤ 35 micrograms ethinylestradiol with either levonorgestrel or norethisterone
- Avoid use of COCs in patients with risk factors for venous thromboembolism, myocardial infarction or ischaemic stroke, such as those aged over 35 years who smoke, have migraine with aura or are likely to be immobile for a prolonged period, e.g. undergoing major surgery
- Progestogen-only oral contraceptives, commonly referred to as progestogen-only pills (POPs), can be used if oestrogen is contraindicated
- COCs can be initiated from six weeks post-partum in patients who are breastfeeding; previous guidance recommended waiting until six months post-partum

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**
- Table of available COCs updated
- New Zealand guidance recommends offering tailored regimens (where the hormone-free interval is omitted periodically or continuously) to all patients initiating or currently taking a COC to reduce the risk of unintended pregnancy and symptoms during the hormone-free interval

COCs: the first-line oral contraceptive choice

Oral contraceptives are available in two formulations, a combined ethinylestradiol/progestogen pill and a progestogen-only pill (POP). Combined oral contraceptives (COCs) are generally the first-line choice for those who wish to use an oral contraceptive, unless oestrogen use is contraindicated. This is because COCs require less strict adherence to regular dosing times than POPs and provide additional non-contraceptive benefits. When COCs and POPs are taken correctly, the estimated rate of pregnancy is < 0.3% during the first year of use.[1]

COCs prevent ovulation, thicken cervical mucus to inhibit sperm penetration of the upper reproductive tract and alter the endometrial lining to make implantation less likely. They are taken as one pill, daily, at approximately the same time of day.

All COCs in New Zealand contain the same oestrogen (ethinylestradiol) in varying doses along with differing progestogens (Table 1). The progestogens vary in their androgenic properties; norethisterone and levonorgestrel are more androgenic than desogestrel; drospirenone and cyproterone are anti-androgenic and therefore most effective for treating acne.[1]

Which COCs are available in New Zealand?

A range of fully or partly funded COCs are available in New Zealand. Other unfunded oral formulations are also available. For partly funded COCs, higher subsidy is available with Special Authority approval for patients with a low income if at least one fully funded option has been trialled and not tolerated, see: **schedule.pharmac.govt.nz/ScheduleOnline.php?code=A130802**

Table 1: COC formulations available in New Zealand, as of February, 2024.[4] Check the NZF (**www.nzf.org.nz**) or the PHARMAC website (**pharmac.govt.nz**) for funding and medicine supply information.

Oestrogen (ethinylestradiol) dose	Progestogen dose		Brand names
20 micrograms	Levonorgestrel 100 micrograms	●	Lo-Oralcon 20 ED Microgynon 20 ED
	Desogestrel 150 micrograms	●	Mercilon 28
	Drospirenone 3 mg		Yaz
30 micrograms	Levonorgestrel 150 micrograms	●	Oralcon 30 ED Levlen ED Lynley 150/30 ED Microgynon 30 ED Monofeme
	Drospirenone 3 mg		Yasmin
35 micrograms	Norethisterone 500 micrograms	●	Norimin 28 Day Brevinor 21 Day*
	Norethisterone 1 mg	●	Brevinor-1 28 Day Brevinor-1 21 Day*
	Cyproterone 2 mg	●	Ginet Diane-35 ED
50 micrograms	Levonorgestrel 125 micrograms		Microgynon 50 ED

● Fully funded

ED = every day formulation – this is a COC regimen that includes placebo pills to be taken during the hormone-free interval. N.B. Not all brand names include "ED" even though they are an ED regimen.

N.B. The following brands of COCs are also listed in the NZF (as they are either still registered or funded), but are currently unavailable: Erlidona, Norimin 1.

* COC formulations that do not contain placebo pills

Formulations with lower doses of ethinylestradiol are just as effective for preventing pregnancy as those with a higher dose.[2, 3]

Cautions and contraindications: when to avoid COCs

Venous thromboembolism (VTE) risk

COC use is associated with a three to 3.5-fold increase in the relative risk of VTE.[5] However, if there are no additional risk factors, the absolute risk of VTE associated with COC use is very small, particularly when compared to the risk during pregnancy and post-partum (Table 2).[1, 5] The risk of VTE is highest in the first few months after initiating a COC or following a break of at least one month and reduces over the first year of use.[5]

If the patient has existing risk factors for VTE, the absolute risk is higher and COCs should not be used.

For information on non-oestrogen-containing contraceptive options appropriate for patients at high risk of VTE, see: "**Contraception: which option for which patient**".

Risk factors for VTE that are **contraindications** to COC use include:[1, 4–6]

- Current or past VTE
- Thrombogenic mutations, e.g. factor V Leiden*, prothrombin mutation, Protein S, Protein C, antithrombin deficiencies
- Major elective surgery, any surgery to the legs or surgery resulting in prolonged immobility, i.e. more than one week†
- Age ≥ 35 years and smoke ≥ 15 cigarettes per day**
- Fewer than three weeks post-partum with other risk factors for VTE

* If homozygous for factor V Leiden or heterozygous with a personal or family history of VTE, COCs should be avoided. If heterozygous but no personal or family history of VTE and no alternative contraceptive is suitable, COCs may be used but avoid formulations with a higher VTE risk (Table 5).[7]

† The COC should be stopped four weeks prior to surgery and can be restarted from two weeks after mobilisation.[8] These recommendations do not apply to minor surgical procedures, e.g. a tooth extraction, or those requiring a short duration of general anaesthesia (< 30 minutes).[8]

** Increasing age and smoking are independent risk factors for VTE, however, when these factors are in combination, the additive risks are considered to outweigh the benefits of COCs[5]

Risk factors for VTE where COC use is **strongly cautioned**, include:[4, 5]

- Family history of VTE in a first-degree relative aged < 45 years
- Obesity (body mass index [BMI] ≥ 35 kg/m^2)
- Immobile for a prolonged period due to illness or disability, i.e. without the added risk of VTE associated with surgery
- Travel > 3 hours, especially with other risk factors (see below)
- History of superficial thrombophlebitis
- Aged ≥ 35 years and smoke < 15 cigarettes per day or stopped smoking less than one year ago
- Fewer than three weeks postpartum without other risk factors

Table 2: Risk of VTE for different patient groups.[9, 10]

Group	Risk of VTE per 10,000 females per year
Childbearing age, non-COC users	2 – 4
COC users	7 – 10
Pregnant and post-partum	20 – 30*

* The risk of VTE two days before and after delivery is estimated to be 300 – 400 per 10,000 females per year and for the first 12 weeks post-partum is 40 – 65 per 10,000 females per year

Best practice tip: Remind patients who take COCs and are going to be travelling on long-haul flights (> 3 hours) to maintain mobility. Compression stockings are not essential unless other risk factors for VTE are present.[5] If the patient is going to spend more than one week at an altitude > 4500 metres they should consider switching to a non-oestrogen-containing contraceptive, particularly if they have other risk factors for VTE.[5]

Other cardiovascular disease (CVD) risk

COC use is associated with a 1.6-fold and 1.7-fold increase in the relative risk of myocardial infarction and ischaemic stroke, respectively.[11*] However, the absolute risk of each of these outcomes is small unless additional risk factors for arterial disease are present.[5] It is estimated that among 10,000 females the use of COCs for one year would result in:[5]

- Two additional cases of thrombotic stroke
- One additional case of myocardial infarction

* The duration of COC use was not reported in this meta-analysis

COCs should not be used if there are additional risk factors for myocardial infarction or stroke, including:[1, 4, 5]

- Current or past ischaemic heart disease, stroke, complicated valvular or congenital heart disease, e.g. pulmonary hypertension, and other vascular disease

- Impaired cardiac function or atrial fibrillation
- Hypertension (systolic ≥ 160 mmHg or diastolic ≥ 100 mmHg); COC use is strongly cautioned in those with systolic blood pressure > 140 mmHg or diastolic > 90 mmHg and those taking antihypertensive medicines, even if hypertension is well controlled
- Diabetes with vascular complications
- Multiple risk factors for CVD, e.g. increasing age, smoking, hypertension, obesity, dyslipidaemia, diabetes
- Migraine with aura or migraine without aura that is new onset during use of COC*

* Could consider initiating a COC with caution if history of migraine without aura, provided no other CVD risk factors

Current breast cancer

COCs should not be used in patients with current breast cancer and use is strongly cautioned against in those with a history of breast cancer or who are known carriers of gene mutations associated with breast cancer, e.g. BRCA1 or BRCA2.[5]

N.B. COCs may be protective against ovarian cancer associated with these mutations;[5] discussion with an oncologist is recommended.

Post-partum

COCs can be started from six weeks post-partum if breastfeeding, provided breastfeeding is well established and there are no concerns with the infant's growth.[1]

COCs can be started from three weeks post-partum if not breastfeeding, provided there are no other risk factors for VTE*; those with additional risk factors should wait six weeks to begin the COC.[1]

* Other risk factors for VTE post-partum include immobility, transfusion at delivery, BMI ≥ 30 kg/m^2, caesarean section delivery, haemorrhage, pre-eclampsia, smoking

For further information on suitable contraceptive options post-partum, see: "**Contraception: which option for which patient**".

Age ≥ 50 years

The use of COCs is not recommended in those aged ≥ 50 years due to the risks outweighing the benefits.[12]

For further information on suitable contraceptive methods for older patients, see: "**Contraception: which option for which patient**".

For further information on medical conditions where COC use is contraindicated or cautioned, e.g. systemic lupus erythematosus, refer to the New Zealand Formulary: **http://www.nzf.org.nz/nzf_4178** and the United Kingdom Medical Eligibility Criteria: **https://www.fsrh.org/standards-and-guidance/uk-medical-eligibility-criteria-for-contraceptive-use-ukmec/**

Starting a COC: selecting a dose and formulation

A reasonable option for a first-time COC user is 30 – 35 micrograms ethinylestradiol with either 150 micrograms levonorgestrel or 500 micrograms norethisterone.[1] A lower dose of ethinylestradiol is recommended for older patients, e.g. > 40 years.[12]

The choice of oral contraceptive may also be influenced by whether the patient seeks non-contraceptive benefits from the medicine, e.g. a formulation containing cyproterone may be appropriate for a patient with acne or polycystic ovary syndrome, however, the benefits should be weighed against the higher VTE risk.

If a patient experiences adverse effects with one COC, another formulation may be trialled (see: "Adverse effects depend on dosing and formulation" and Table 3).

Initiation

The conventional method is to initiate a COC within the first five days of menses onset; no additional contraceptive precautions are required.[1] With the "quick start" method, the COC can be initiated on any day of the cycle, if it is reasonably certain the patient is not pregnant; additional protection (i.e. condoms) should be used for the first seven days (if not initiated during the first five days of menstruation).[1] Offer a pregnancy test 21 days after the last instance of unprotected sexual intercourse (before the COC was initiated).[1] N.B. Pregnancy tests are available on Practitioner's Supply Order (PSO) and can be provided to the patient to take home.

Tailored regimens can be offered to omit the pill-free week

COCs are typically taken in a regimen of 21 "active" hormone pills followed by a hormone-free interval of seven days, during which withdrawal bleeding occurs. However, there is no evidence to support any health benefits from having a monthly withdrawal bleed.[5] Lengthening the hormone-free interval by missing pills at the beginning or end of a cycle may increase the risk of pregnancy by allowing follicular development and ovulation in some patients.[1, 5]

Omitting the hormone-free interval may improve contraceptive effectiveness, reduce heavy bleeding and improve symptoms associated with the withdrawal bleed, such as bloating/fluid retention, headache and altered mood.[1, 5, 6] Data directly comparing the risk of cardiovascular events and cancer between standard and extended regimens

Table 3: Managing adverse effects associated with COCs.[1, 4, 5, 13]

Adverse effect	Suggested actions
Acne	Increase oestrogen; and/or Decrease progestogen or select a less androgenic or anti-androgenic progestogen, i.e. desogestrel, drospirenone* or cyproterone
Bloating/fluid retention	Decrease oestrogen; and/or Change to a progestogen with a mild diuretic effect, i.e. drospirenone*
Breakthrough bleeding	Increase oestrogen; and/or Change the type of progestogen, e.g. levonorgestrel or desogestrel
Breast tenderness	Decrease oestrogen and/or progestogen; and/or Change progestogen, e.g. levonorgestel
Headache	Decrease oestrogen; and/or Change progestogen, e.g. levonorgestrel If headaches occur in the hormone-free interval, consider an extended or continuous regimen
Abdominal cramping or heavy bleeding during the hormone-free interval	Extended or continuous regimen
Nausea	Decrease oestrogen and/or take the pill at night; and/or Change to a POP

* Drospirenone may increase potassium levels. If there are risk factors for hyperkalaemia such as renal insufficiency, liver dysfunction or adrenal gland insufficiency, a COC containing this progestogen should not be used. COC formulations containing drospirenone are currently not funded in New Zealand.

are not yet available, however, indirect evidence suggests no difference in cardiovascular risk.[5] There is also no evidence of endometrial thickening or histological abnormalities with extended or continuous regimens.[5] There is an increased risk of breakthrough bleeding when pills are taken continuously, but this declines with time.[5]

If breakthrough bleeding persists for three to four days when taking pills continuously, the pills should be stopped for four days and then resumed.[5]

If patients do not wish to omit the hormone-free interval completely, another option is to shorten this period from seven to four days. This reduces the chance of return to ovarian activity and therefore may decrease the risk of contraceptive failure, e.g. if pills are missed.[5]

A tailored regimen can be recommended to patients who are starting or already taking a COC (Table 4). There is an additional prescription co-payment cost associated with requiring more pill packs per year, i.e. if used continuously, a six-month prescription will last 18 weeks instead of 24 weeks. However, this cost may be offset by savings made from not having to purchase sanitary products.

Practice point: Advise patients that while tailored regimens are unapproved, they are recommended by the Royal Australia and New Zealand College of Obstetricians and Gynaecologists and the United Kingdom's Royal College of Obstetricians & Gynaecologists Faculty of Sexual and Reproductive Health.[1, 5]

Table 4: Examples of different regimens for COC use.[5]

Regimen	Duration of hormone pills (days)	Hormone-free interval (days)
Standard	21	7
Shortened hormone-free interval	21	4
Extended	63 or 84, i.e. 3 or 4 packets of pills	4 – 7 (every 3 – 4 packets of pills)
Continuous use	Continuous use of active pills	None

Ensure that patients understand how to follow the tailored regimen correctly

Tailoring a COC regimen requires deviation from the instructions on the COC packaging which may lead to medicine errors. Discuss the regimen options with the patient and ensure that they understand how to omit the hormone-free interval, i.e. by discarding the unused placebo pills and starting on the next pack of active pills.

For further information on initiating an oral contraceptive, including changing from another method of contraception, refer to the New Zealand Formulary: **www.nzf.org.nz/nzf_4163**

Patient information on how to take a pill continuously can be found here: **www.familyplanning.org.nz/advice/contraception/combined-oral-contraceptive-pill**

Long-term outcomes associated with COC use

Cancer

COCs are associated with a reduced risk of several cancers including endometrial, ovarian and colorectal cancers, but an increased risk of breast and cervical cancers (see: "Revisiting the link between hormonal contraception and breast cancer risk").[5]

A longitudinal study conducted in the United Kingdom which followed females* for up to 44 years estimated that COC use resulted in the prevention of:[15]

- 19% of colorectal cancers
- 34% of endometrial cancers
- 34% of ovarian cancers

COC use was associated with an estimated:

- 25% of cervical cancers†
- 3% of breast cancers

The increased risk of breast and cervical cancer was only present in current and recent users; the risk was no longer present in this study five years after stopping the COC.[15]

* Average age at recruitment was approximately 28 years; 82% had at least one child at the time of recruitment

† Human papillomavirus (HPV) infection is necessary for the development of cervical cancer. It is not certain whether the COC itself increases the risk of cervical cancer, or whether its use is associated with an increase in HPV infection rates due to sexual activity without a condom. COC use for more than five years is associated with a small increase in the risk of cervical cancer, but the risk reduces over time.[1,5]

Adverse effects and risks associated with COC use depend on dosing and formulation

Lower doses of oestrogen are associated with lower risks. Research has shown that doses of 20 micrograms of ethinylestradiol, daily, are associated with lower risks of VTE, stroke, and myocardial infarction than doses of 30 micrograms and above, daily, but more risk of breakthrough bleeding.[5]

The choice of progestogen may influence risks. Evidence regarding the safety of different progestogens is conflicting but suggests that COCs containing levonorgestrel or norethisterone may be associated with lower rates of VTE (Table 5), stroke, and myocardial infarction than COCs containing the newer generation progestogens.[5] In addition, discontinuation rates due to adverse effects such as headache, breast tenderness and nausea are lower for levonorgestrel-containing than norethisterone-containing COCs.[14]

Table 5. VTE risk according to COC formulation.[9, 10]

Group	Risk of VTE per 10,000 females per year
Non-COC users	2 – 4
Low-dose* COC with levonorgestrel or norethisterone	5 – 7
Low-dose* COC with drospirenone, desogestrel, cyproterone	9 – 12
High-dose† COC with levonorgestrel	9 – 12

* Low dose = 20 – 35 micrograms ethinylestradiol

† High dose = 50 micrograms ethinylestradiol

Mood changes

Evidence of an association between COC use and changes in mood is variable.[5] Some women may experience negative mood changes when taking a COC, however, causation has not been established.[5] Most observational studies suggest no increase in the incidence of depression with COC treatment.[5] However, COCs should be used with caution if there is a history of depression and all patients should be monitored for abnormal changes in mood.[4, 5]

Weight gain due to use of COCs is unlikely

Most evidence suggests no association between COC use and weight gain.[5] A 2014 Cochrane review covering 49 studies concluded there was no convincing evidence that use of COCs affects body weight or composition, and if any effect exists it is likely to be small.[16]

POPs: the oral contraceptive option when oestrogen use is contraindicated

Progestogen-only formulations are a suitable alternative for those who wish to use an oral contraceptive but have contraindications to oestrogen use or prefer not to use a COC.

POPs thicken cervical mucus to inhibit sperm penetration and may also prevent ovulation (50% of cycles).[17] The desogestrel-only formulation consistently inhibits ovulation (97% of cycles) (Table 6).[1]

Initiation

The conventional method is to initiate a POP within the first five days of the menstrual cycle; additional contraceptive precautions are not required. With the "quick start" method, the POP can be initiated on any day of the cycle if the patient is reasonably certain they are not pregnant.[1] Patients who are sexually active should be advised to use condoms or avoid sexual intercourse for the first two days after initiating hormone pills (48 hours). A pregnancy test 21 days after the last occurrence of unprotected sexual intercourse before starting the POP is also recommended.[1]

Which POPs are available in New Zealand?

There are three fully funded POPs available in New Zealand (Table 6). Although robust head-to-head studies are not available, evidence suggests that when used correctly the different formulations of POPs available in New Zealand are equally effective in preventing pregnancy.[17]

Managing breakthrough bleeding associated with COC use

Some patients may experience breakthrough spotting or bleeding while taking COCs. This is more common within the first three months of initiation and typically settles over time.[1]

When prescribing a COC, inform patients about the possibility of breakthrough bleeding and provide reassurance that this does not reduce the contraceptive effectiveness of the COC. Patients should also be reminded that missing a pill increases the risk of breakthrough bleeding and, depending on when in the pack it is missed, may reduce the contraceptive effectiveness.

If bleeding does not settle after three months and other causes have been excluded, consider the following strategies to improve breakthrough bleeding:[1, 5, 13]

- **Increasing oestrogen dose:** changing to a formulation with a higher dose of ethinylestradiol (to a maximum of 35 micrograms)
- **Changing progestogen type:** limited evidence suggests that a levonorgestrel-containing COCs may be preferable over a formulation containing norethisterone, and that desogestrel may be preferable to levonorgestrel
- **Smoking cessation:** breakthrough bleeding is more common in COC users who smoke although the mechanism for this is not well defined

If the first instance of breakthrough bleeding is more than three months following the initiation of the COC or bleeding is persistent, consider whether there might be another clinical explanation, e.g. missed pills, medicine interactions, sexually transmitted infection, pregnancy, cervical or uterine pathology.[1]

For further information on investigating and managing abnormal vaginal bleeding, see: **https://bpac.org.nz/2019/bleeding.aspx**

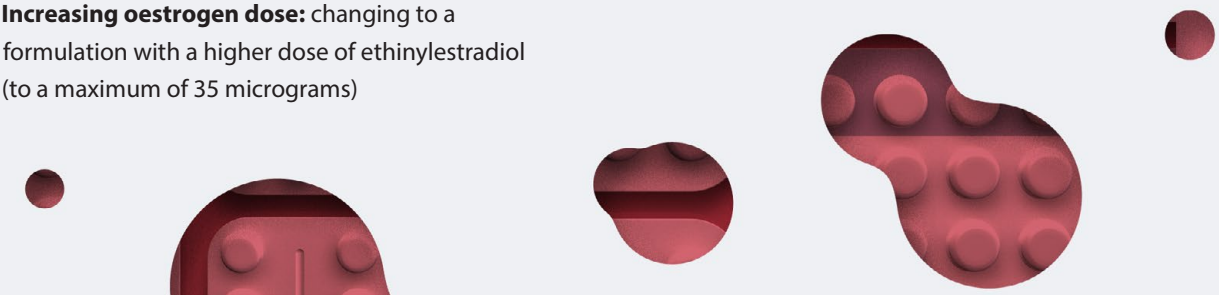

Table 6: POP formulations available in New Zealand, as of March, 2025.[4]

Progestogen type and dose		Brand name
Levonorgestrel 30 micrograms	●	Microlut
Norethisterone 350 micrograms	●	Noriday 28 Day
Desogestrel 75 micrograms	●	Cerazette

● Fully funded

Contraindications and cautions to POP use

POPs should not be used in patients with unexplained vaginal bleeding, severe liver disease (e.g. decompensated cirrhosis) or current breast cancer.[1, 4] 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 (see: "Revisiting the link between hormonal contraception and breast cancer risk").[8] Any consideration should ideally be discussed with an oncologist.[8] POPs should be used with caution in patients with current or a history of ischaemic heart disease or stroke.[1]

For further information on medical conditions where POP use is contraindicated or cautioned, refer to the New Zealand Formulary: **www.nzf.org.nz/nzf_70966** and the United Kingdom Medical Eligibility Criteria: **www.fsrh.org/standards-and-guidance/uk-medical-eligibility-criteria-for-contraceptive-use-ukmec/**

Revisiting the link between hormonal contraception and breast cancer risk

A **United Kingdom-based study published in 2023** suggests that the risk of developing breast cancer in people who take progestogen-only contraceptives is comparable to those taking combined hormonal contraceptives. In the initial analysis of records from a large primary care database, it was found that people who received any form of hormonal contraception had an increased risk of invasive breast cancer (odds ratio [OR] 1.33) compared to people who had never taken hormonal contraception. This increase was similar across all forms of hormonal contraception: oral combined (OR 1.23, 95% confidence interval [CI] 1.14 – 1.32, $p < 0.001$), oral progestogen-only (OR 1.26, CI 1.16 – 1.37, $p < 0.001$), injected progestogen (OR 1.25, CI 1.07 – 1.45, $p = 0.004$), progestogen-releasing IUD (OR 1.32, CI 1.17 – 1.49, $p < 0.001$).

The authors of the study then performed a meta-analysis, combining these results with available data from previous studies on progestogen-only contraceptives, and found similar, comparable risks between all forms of progestogen-only contraceptives. The relative risk of breast cancer with oral combined or progestogen-only contraceptive use is increased approximately 20 – 30%, however, the absolute risk after five years of hormonal contraceptive use is small:

- For people aged 16 – 20 years, the estimated 15-year absolute risk of breast cancer increased from 0.084% to 0.093%; an additional eight cases per 100,000 users
- For people aged 25 – 29 years, the estimated 15-year absolute risk of breast cancer increased from 0.50% to 0.57%; an additional 61 cases per 100,000 users
- For people aged 35 – 39 years, the estimated 15-year absolute risk of breast cancer increased from 2.0% to 2.2%; an additional 265 cases per 100,000 users

The full article is available from: **journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1004188**

Should we be concerned about these findings? While it is recommended that the new information is included when discussing the risks and benefits of contraceptive options with patients, the UK Faculty of Sexual and Reproductive Healthcare **has not currently recommended** any major changes to clinical practice in response to the study.

Best Practice Tip: The absolute risk of breast cancer with progestogen-only contraceptive use is still very small, especially in younger patients with no familial breast cancer risk. The decision to prescribe any type of hormonal contraception should consider this low risk in the context of the possible benefits of use, e.g. reduced risk of an unplanned pregnancy and other non-contraceptive benefits such as reducing the risk of endometrial and ovarian cancers.

Correct and consistent use is essential for POPs to provide effective contraception

POPs are taken continuously, i.e. an active pill each day. Advise patients considering a POP that regular adherence is essential for these medicines to be maximally effective. Norethisterone and levonorgestrel-only pills must be taken within three hours of the regular dosing time each day. Desogestrel-only pills have a wider window for error and must be taken within 12 hours of the regular dosing time.

Benefits of POPs

POPs offer the same level of contraceptive effectiveness as COCs and can be used in clinical situations where COCs are not recommended.[17]

POPs may be used when breastfeeding and can be initiated at any time post-partum, unlike COCs which should not be used in the first six weeks if breastfeeding (see: "Cautions and contraindications: when to avoid COCs").[1]

Adverse effects associated with POPs

Bleeding patterns may be unpredictable, due to the variable inhibition of ovulation; it is estimated that 50% of patients taking a POP will continue to have a normal menstrual cycle, 40% an irregular menstrual cycle and 10% no menstrual cycle.[18] Up to 70% of patients taking POPs report breakthrough bleeding and 10% report frequent bleeding, i.e. more than five episodes in 90 days.[17, 19]

Problematic bleeding may settle over time without treatment,[1] but does not always. Changing to a different POP, e.g. a desogestrel-only pill, may improve bleeding regularity in some patients.[1] An alternative method of contraception may be required in some cases. For example, the levonorgestrel IUD Mirena may be suitable for woman who experience persistent heavy menstrual bleeding.

N.B. There is no convincing evidence that POPs cause weight gain.[1]

Interactions between COCs or POPs and other medicines

The effectiveness of COCs and POPs can be reduced by interactions with medicines that induce hepatic metabolism by the CYP3A4 enzyme, e.g. rifampicin, rifabutin, carbamazepine, oxcarbazepine, nevirapine, phenytoin, phenobarbital, primidone, ritonavir, St John's wort and topiramate.[1, 20] COC or POP absorption may be reduced by concurrent use of laxatives if they cause diarrhoea or are used excessively or inappropriately. The effectiveness of other medicines may be affected by COCs or POPs, e.g. there is a moderate theoretical risk that oestrogens increase levothyroxine requirements.

Interactions between oral contraceptives and other medicines can be checked here: **www.nzf.org.nz/nzf_1**

Reminder: accredited pharmacists can supply selected oral contraceptives without a prescription

The reclassification of selected oral contraceptives in 2017 allows accredited pharmacists to supply the following formulations without a prescription to medically eligible patients:[21]

- COCs with ≤ 35 micrograms of ethinylestradiol combined with levonorgestrel or norethisterone (can be supplied to patients aged 16 – 39 years)
- POPs with levonorgestrel, norethisterone or desogrestrel alone (can be supplied to patients aged 16 – 52 years)

Registered pharmacists must complete an approved training programme to be able to supply these oral contraceptives.

A comprehensive assessment is required to determine whether the patient meets the requirements for the pharmacist-supply of the COC or POP. The selected oral contraceptive **must** have been prescribed by a medical practitioner in the last three years, the patient must have had at least one further appointment with a medical practitioner since initiating the oral contraceptive and the patient must see a medical practitioner at least once every three years (to assess continued suitability of the oral contraceptive and for a sexual health check). The pharmacist must supply the same formulation of oral contraceptive that the patient was originally prescribed (refer to the Practice Guidelines for some exceptions to this). With consent from the patient, the pharmacist should notify the patient's medical practitioner that they are supplying their COC or POP.

The practice guidelines for the pharmacist-supply of selected oral contraceptives is available here: **https://www.psnz.org.nz/Folder?Action=View%20File&Folder_id=167&File=Pharmacist%20SOC%20Guidelines%20(May%202018).pdf**

Managing patients taking enzyme-inducing medicines

Patients who are taking an oral contraceptive and an enzyme-inducing medicine short-term, i.e. fewer than two months, should be advised to use condoms for the duration of treatment with the enzyme-inducing medicine and for a further four weeks after stopping.

If the enzyme-inducing medicine is required long-term, recommend an alternative contraceptive, e.g. medroxyprogesterone injection or an intrauterine contraceptive.

 For further information on the use of antiepileptic medicines in females, see: **www.bpac.org.nz/2018/antiepileptic.aspx**

Most broad-spectrum antibiotics do not interact with oral contraceptives

Most antibiotics, aside from rifampicin and rifabutin, do not have a clinically relevant interaction with oral contraceptives and patients do not need to take extra precautions as long as they are taking their contraceptive consistently and correctly.[20] However, if the antibiotic or the illness it is treating causes vomiting or diarrhoea, additional contraceptive precautions might be required (see: "Recommendations for missed COCs or POPs").

Recommendations for missed COCs or POPs [4, 5]

A missed COC pill is when ≥ 24 hours have passed since the regular dosing time. The missed pill should be taken as soon as it is remembered, and the next pill taken at the usual time, even if that means taking two pills at once. No extra contraceptive precautions are necessary.

If two or more COC pills are missed, one active pill should be taken as soon as it is remembered, and the normal regimen then resumed. For patients using a standard COC regimen, additional precautions depend on when in the regimen the pills are missed:

- Week 1 (after hormone-free interval) – Condoms should be used or sex avoided, until seven consecutive pills have been taken. If unprotected sex has occurred during the hormone-free interval or week 1, offer emergency contraception.
- Week 3 (prior to hormone-free interval) – If two or more pills are missed in the seven days before a hormone-free interval, omit the hormone-free interval. If a hormone-free interval does occur, additional contraceptive precautions are required until seven consecutive pills have been taken.

Up to eight consecutive pills could be missed during week 2 to 3 of a standard regimen or at any time during a continuous regimen, before contraceptive protection is lost, provided that seven hormone pills were taken consecutively before the missed pills and the hormone-free interval is omitted if the missed pills are in week 3 of a standard regimen. However, out of an abundance of caution, condom use or abstinence is recommended, until seven consecutive pills have been taken. Offer emergency contraception if eight or more consecutive pills are missed and unprotected sex has occurred.

For POPs, a missed pill is if more than three hours have passed since the regular dosing time for norethisterone or levonorgestrel-only pills or more than 12 hours for desogestrel-only pills. The missed pill should be taken as soon as it is remembered. If more than one pill has been missed, only one should be taken. The next pill should be taken at the regular dosing time and condoms should be used, or sex avoided, for the next 48 hours. If unprotected sexual intercourse has occurred after the missed pill and within 48 hours of restarting the POP, emergency contraception should be offered.

Vomiting and diarrhoea may interfere with the absorption of COCs and POPs. If vomiting occurs and less than two hours have passed since taking a COC or POP, another pill should be taken as soon as possible. If the replacement POP is taken more than three hours after the regular dosing time (12 hours for a desogestrel-only pill), additional contraceptive precautions will need to be taken during the illness and until two consecutive hormone pills have been taken. If the replacement COC is taken within 24 hours of the regular dosing time, additional contraceptive precautions are not required.

If vomiting or diarrhoea is persistent, i.e. lasting more than 24 hours, an additional contraceptive method should be used during the illness and until:

- Seven consecutive hormone pills have been taken if using COCs
- Two consecutive hormone pills have been taken if using POPs

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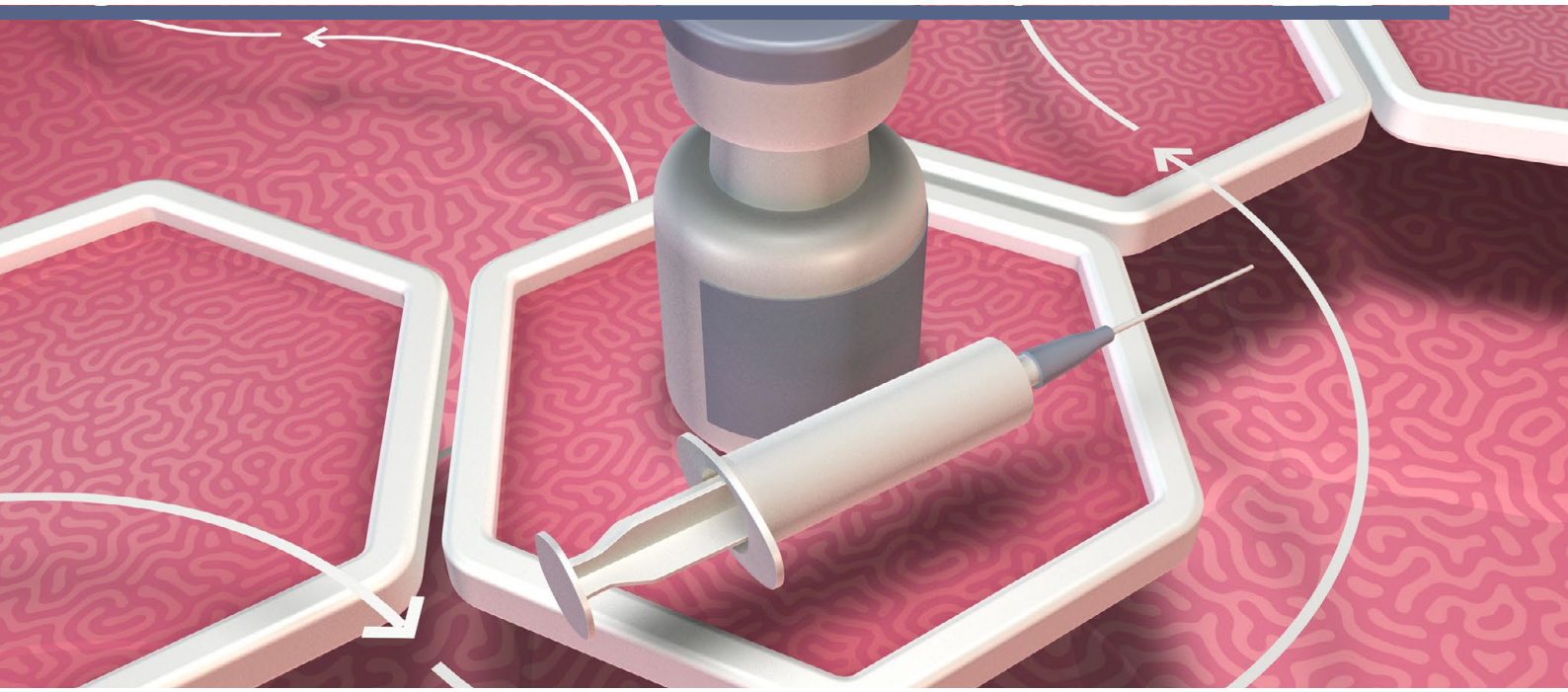
www.bpac.org.nz/2021/contraception/oral-contraceptives.aspx



Depot medroxyprogesterone acetate (DMPA) injections: an intermediate option

Depot medroxyprogesterone acetate injections are a form of hormonal contraception administered every 13 weeks for optimal effect. This is an evidence-based change from the previously recommended 12-week dosing interval. Despite being associated with variable changes in bleeding patterns and a delayed return to fertility when stopped, it is a preferred method of contraception for many people as it does not rely on daily adherence or require an insertion procedure.

KEY PRACTICE POINTS:

- DMPA injections are a highly effective form of contraception; the estimated rate of pregnancy during the first year of use is 0.2% with recommended use
- DMPA injections are a suitable option in many cases when oestrogen-containing contraceptives are contraindicated
- The decision to initiate use should involve a comprehensive discussion regarding the potential risks and adverse effects; in particular, the patient should be aware that irregular bleeding patterns are common during the first year of use and that return to fertility can be delayed after stopping injections
- New Zealand guidelines recommend a dosing interval of 13 weeks; this is an evidence-based change from the previously recommended 12-week dosing interval
- Approximately half of those receiving DMPA injections report amenorrhoea after 12 months of use, which may be beneficial in those who have experienced menorrhagia or dysmenorrhoea during their menstrual cycle
- Although evidence of adverse clinical outcomes is lacking, DMPA injections are associated with a reduction in bone mineral density, therefore alternative methods of contraception should be considered first in those aged under 18 years or of any age with risk factors for osteoporosis
- The risks and benefits should be re-evaluated at least once every two years in every person using this form o

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**
- The recommended dosing interval for DMPA is now 13 weeks. This is an evidence-based recommendation from the New Zealand contraception guidance. Injections can be administered up to seven days late (i.e. a dosing interval of 14 weeks) without need for additional contraception.

Depot medroxyprogesterone acetate (DMPA) injections are an effective form of hormonal contraception

DMPA (Depo-Provera) is a fully funded form of progestogen-only contraception administered via intramuscular injection.[1] Its primary effect is to reduce the chance of ovulation by limiting follicle stimulating hormone and luteinizing hormone secretion.[1] In addition, DMPA injections can alter cervical mucus to prevent sperm penetration, as well as thin the endometrial lining to make it unsuitable for implantation.[1]

DMPA injections may be preferred by people who:[2, 3]

- Have difficulty adhering to daily oral contraceptive regimens, e.g. working irregular shifts, forgetful with daily medicine use
- Prefer a contraceptive with prolonged action but have concerns over the more invasive insertion procedures associated with levonorgestrel implants and intrauterine contraceptives
- Have a contraindication or caution for oestrogen use, e.g. migraine with aura

DMPA injections may also be a useful treatment for heavy menstrual bleeding or dysmenorrhoea, although its effects on bleeding are unpredictable (see: "Altered bleeding patterns are common").[1]

Highly effective contraception when administered on time

When administered at the recommended interval, DMPA has a failure rate of approximately 0.2% in the first year of use, i.e. two pregnancies per 1,000 people treated.[1] New Zealand guidelines recommend a dosing interval of 13 weeks (outside of the product's approved use).[1] This is a change in practice from the previously recommended interval of 12 weeks, and is based on evidence of effectiveness at preventing pregnancy up to 15 weeks following treatment.[1]

With typical use of DMPA, which includes inconsistent, late or incorrect use, the failure rate has been estimated at 6%, which is higher than for long-acting reversible contraceptives (LARCs), e.g. levonorgestrel implants.[1] For this reason, along with the fact that effectiveness is user-dependent (i.e. reliant on adherence to the recommended injection interval), organisations including the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, no longer consider DMPA injections to be a form of LARC.[4]

Injections are generally well-tolerated

DMPA injections are usually well-tolerated, but adverse effects can include acne, nausea, headaches and hot flushes, the occurrence of which will typically decrease over time.[5] Menstrual irregularities and weight gain can also occur, which may be unacceptable for some people (see: "Balancing the benefits and risks of DMPA injections").[1]

Symptoms to monitor. Patients should be advised to report any new-onset chest pain, deep unilateral leg pain or shortness of breath, and investigated for the possibility of a thromboembolic event (see: "Cardiovascular risk factors may be a reason not to use DMPA injections").[5] Mood changes are also sometimes reported.[2] It is recommended that patients with a history of clinical depression are closely monitored during treatment, and the injections stopped if a significant relapse occurs.[5] There is a very small risk of anaphylaxis following DMPA administration.[1, 2]

Suitable if given concurrently with hepatic enzyme-inducing medicines. A notable advantage of DMPA over other forms of hormonal contraception is that its effectiveness is not influenced by the use of hepatic enzyme-inducing medicines, e.g. antiepileptic medicines, so they can be used at the same time.[1]

When should DMPA injections be avoided?

DMPA injections are contraindicated* in people with:[3, 6, 7]

- 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. Any consideration should ideally be discussed with an oncologist.
- Undiagnosed vaginal bleeding
- Thrombophlebitis or thromboembolic disorders, or in those with a history of these conditions
- Poorly controlled hypertension; systolic blood pressure ≥ 160 mmHg or diastolic ≥ 100 mmHg
- Severe hepatic dysfunction, e.g. people with decompensated cirrhosis or malignant hepatic tumours

DMPA injections should be used with caution* in people with:[6, 7]

- History of ischaemic heart disease, stroke or transient ischaemic attack
- Multiple cardiovascular risk factors, e.g. increasing age, hypertension, obesity, dyslipidaemia, diabetes, smoking
- Increased risk of bone mineral density loss (see: "Be aware of potential changes in bone mineral density")

* For a full list of contraindications and cautions, refer to the New Zealand Formulary: **nzf.org.nz/nzf_10051** and the United Kingdom Medical Eligibility Criteria: **www.fsrh.org/standards-and-guidance/uk-medical-eligibility-criteria-for-contraceptive-use-ukmec/**

Administering DMPA injections

- The upper outer quadrant of the buttock (i.e. dorsogluteal site) is the preferred IM injection site; the ventrogluteal site is an alternative, to reduce sciatic nerve injury. If excessive adipose tissue is present the deltoid muscle site is another alternative that can be used.[1, 2]
- The first injection should be given within the first five days of starting of a menstrual cycle or within the first five days post-partum; however, the risk of heavy or prolonged bleeding is increased when injections are administered shortly after giving birth.[2, 5]
  - If breastfeeding, it is generally recommended to delay the first injection until six weeks post-partum (see: "DMPA injections can be used while breastfeeding")[1, 2, 6]
- No additional contraception is needed when injections are started within the first five days of the menstrual cycle; if initiated later in the menstrual cycle, additional contraception should be used for seven days following the first injection with a follow-up pregnancy test recommended four weeks later[2]
- Although repeat injections should be given every 13 weeks, they can be administered between 10 and 14 weeks if necessary (Table 1)[1]

Table 1: Guidance for repeat DMPA injections administered outside the recommended 13 week interval.[1]

Time since last injection	Recommendation
10 – 13 weeks	Consider administering injection early if bleeding occurs; exclude other causes if bleeding is very heavy
13 – 14 weeks	Administer injection; no additional contraception is required
>14 weeks	Perform a pregnancy test and offer emergency contraception; administer injection if pregnancy is excluded and recommend additional contraception for seven days


For further information on performing intramuscular injections, see: **www.bpac.org.nz/BPJ/2015/December/correspondence.aspx#3**

Balancing the benefits and risks of DMPA injections

Before beginning treatment, it is important to discuss the potential benefits and risks of DMPA injections and to emphasise that its effectiveness is dependent on adherence.

Altered bleeding patterns are common

DMPA injections are likely to cause changes in bleeding pattern such as amenorrhoea, irregular bleeding or spotting, or prolonged bleeding.[1] As the duration of use increases, amenorrhoea becomes more likely (Table 2).[3] Altered bleeding patterns are the most frequent reason for stopping DMPA use in the first year; if information is provided about this and people are reassured that irregular bleeding patterns are normal, and are likely to settle, it may help with longer term adherence. If bleeding is persistent or problematic, after excluding other causes (e.g. cervical pathology), it can be managed using pharmacological intervention (see: "Managing persistent or problematic bleeding").[1] In patients with heavy menstrual bleeding that persists despite pharmacological intervention, an alternative method of contraception may be more suitable, e.g. a levonorgestrel intrauterine system.

Changes in bleeding may be beneficial for some, but are unpredictable

In some people, reduced bleeding or amenorrhoea may be desirable, such as those with menorrhagia or dysmenorrhoea, or those who experience anaemia as a result of heavy bleeding.[1, 3] However, as the bleeding patterns associated with DMPA are unpredictable, this may be an unreliable management strategy. In people with endometriosis, DMPA injections (using a different dosing regimen*) can be useful for reducing bleeding symptoms and pelvic pain.[8]

* The recommended dose for endometriosis is 50 mg weekly or 100 mg every two weeks for at least six months. New Zealand guidance recommends initiating at a lower dose (i.e. 150 mg, three-monthly).[8] Consider increasing the dose if bleeding is troublesome or symptoms are uncontrolled. N.B. Depo-Provera is available in 150 mg/mL vials.

For further information on the pharmacological management of endometriosis, see: **https://bpac.org.nz/2021/endometriosis.aspx**

Table 2: Prevalence of altered bleeding patterns in people administered DMPA injections.

Altered bleeding pattern	After three months	After 12 months
Amenorrhoea[2]	10%	47%
Irregular bleeding[9]	15%	9%
Prolonged bleeding[10]	29%	10%

There is often a delay in the return to fertility with DMPA injections

A significant factor influencing the decision to use DMPA injections is its association with a delay in the return to fertility once treatment is stopped; this delay is variable, but patients should be informed that it may be up to one year.[1] One follow-up study reported an average of six months (range two to eleven months) for return of ovulation.[2, 11] There is no evidence that DMPA injections cause a permanent loss of fertility. Following the final injection, it is estimated that 65% of those who wish to become pregnant do so within 12 months, 83% do so within 15 months and 93% do so within 18 months (median time ten months).[5] As such, those wanting to become pregnant in the near future or shortly after stopping contraceptives should consider an alternative method of contraception until they are ready to conceive. If DMPA injections are stopped, another contraceptive should be initiated at the time the next injection would have been due.[2]

DMPA injections can be used while breastfeeding

DMPA injections are considered safe to use while breastfeeding.[1, 6] The manufacturer recommends delaying administration until six weeks post-partum if breastfeeding, due to theoretical concerns over an infant's ability to metabolise DMPA.[5] However, there is no evidence of adverse effects on infant growth, health or development or on breastfeeding performance, therefore the UKMEC* considers the benefit of use of DMPA in the first six weeks post-partum to outweigh the risks.[6] New Zealand guidelines recommend delaying DMPA administration until day 21 post-partum if breastfeeding.[1]

* United Kingdom Medical Eligibility Criteria: **https://www.fsrh.org/standards-and-guidance/uk-medical-eligibility-criteria-for-contraceptive-use-ukmec/**

DMPA injections are associated with a small amount of weight gain

Current evidence suggests that DMPA injections are the only form of contraception associated with weight gain.[12] In clinical studies, an average increase in weight of one to two kilograms over one year of use has been reported.[3, 12] Weight gain appears to increase with longer durations of treatment and is most strongly associated with use in people aged under 18 years with an initial body mass index ≥ 30 kg/m^2.[1] Switching to an alternative method of contraception may be advised in those who gain more than 5% of their initial body weight within six months as continued weight gain is likely.[1]

Other potential health concerns are not well defined

Be aware of potential changes in bone mineral density

DMPA injections are associated with a small reduction in bone mineral density due to its hypo-oestrogenic effect.[2, 3] This form of contraception is therefore not a first-line choice in people aged under 18 years as there are concerns that it may influence peak bone mineral density.[1, 2] It is recommended that the benefits and risks of treatment should be reassessed every two years, and if risk factors for osteoporosis are identified, e.g. rheumatoid arthritis, inflammatory bowel disease, age over 50 years or perimenopausal, an alternative method of contraception should be recommended.[1, 3]

Further investigation is required to understand the consequences of these changes

It is not known whether the changes in bone mineral density with DMPA use results in an increased fracture risk or whether longer durations of treatment cause greater losses.[2] Some studies suggest that the rate of bone mineral density loss is more significant during the first two years of treatment and slows with continued use, however, this finding has not been consistently replicated. In general, any losses are reversed once treatment is stopped.[2]

The association with cancer risk requires further investigation

Breast cancer. Evidence on the risk of breast cancer in people who have taken DMPA injections is limited.[2] Studies have indicated there may a weak association – similar to findings with combined oral contraceptives – but absolute increases in risk are generally low and appear to diminish once treatment is discontinued, e.g. there is no increased risk more than five years after treatment ceases.[1, 2]

Cervical cancer. Studies have found a slightly increased risk of cervical cancer in people using DMPA injections for five years

or more, however, it is not clear if the association is causal or whether confounding factors are involved.[1, 2] As with breast cancer, the risk reduces after stopping treatment.

Other conditions. DMPA injections are not associated with an increased risk of endometrial or ovarian cancers and evidence suggests they may actually have a protective effect.[1] In addition, studies indicate a potentially reduced risk of colon cancer, acute episodes of pelvic inflammatory disease and ectopic pregnancy when using this form of contraception, however, further investigation is required to confirm these benefits.

Cardiovascular risk factors may be a reason not to use DMPA injections

The effect of taking DMPA injections on cardiovascular disease risk remains under scrutiny. A small increase in the risk of venous thromboembolism (VTE) has been noted in clinical trials of progestogen-only contraceptives, however, a causal relationship has not been confirmed specifically for DMPA injections.[1, 2] In addition, it should be considered that the risk of VTE is considerably lower than that associated with pregnancy or use of combined oral contraceptives. There is also insufficient evidence to conclude whether myocardial infarction and stroke are associated with DMPA.[1] In general, clinical decisions should be made based on the severity and number of risk factors, in addition to the likelihood of follow-up. For example, DMPA injections should usually not be used if the person has multiple risk factors for arterial cardiovascular disease, e.g. hypertension and diabetes.[3]

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Managing persistent or problematic bleeding while using DMPA

First-line options (recommended in clinical guidelines):

- A combined oral contraceptive for up to three months (with or without placebo pills), e.g. 30 – 35 micrograms ethinylestradiol with levonorgestrel or norethisterone;[13] one month is usually sufficient to manage abnormal bleeding
- Oral mefenamic acid 500 mg (partly funded), two to three times daily, for up to five days; OR oral tranexamic acid 1 g (fully funded), three to four times daily, for up to four days, can be used to reduce an episode of heavy bleeding[13]

Second-line options (low-level, anecdotal or conflicting evidence):

- Oral medroxyprogesterone acetate* 10 mg (fully funded), once daily, for 21 days[7]
- Oral norethisterone 5 mg (fully funded), two to three times daily, for 21 days[7]

* Family Planning New Zealand recommends oral medroxyprogesterone acetate as the preferred second-line option. This is because there is concern that at high doses norethisterone is converted into oestrogenic compounds, which is not suitable for patients with a contraindication to oestrogen treatment.

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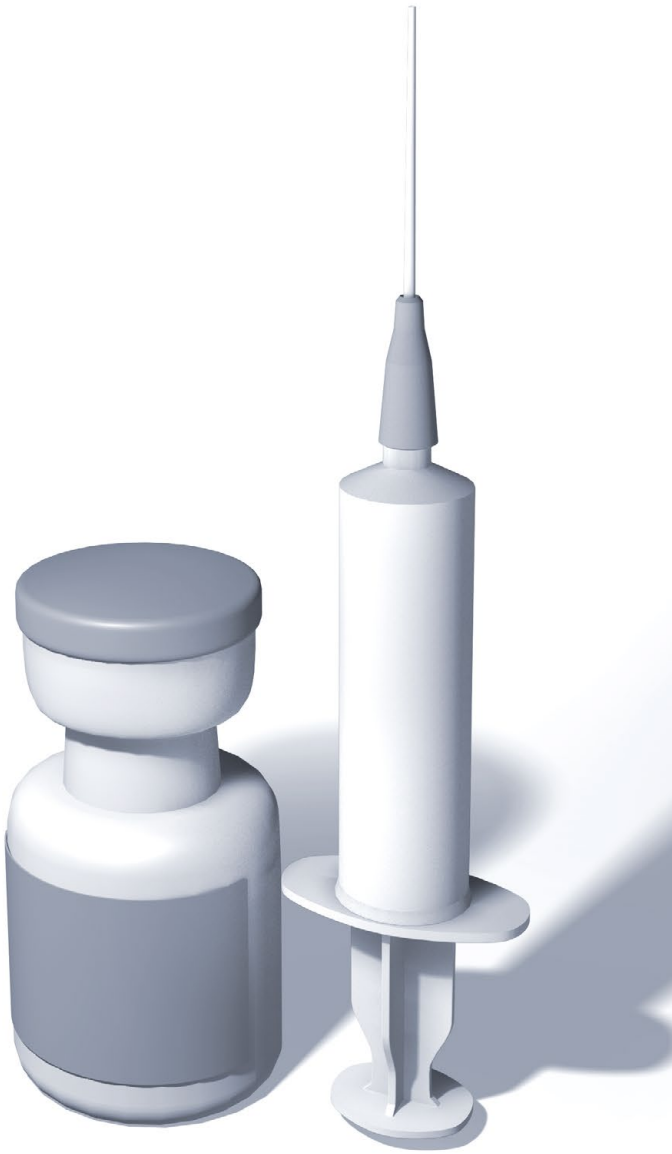
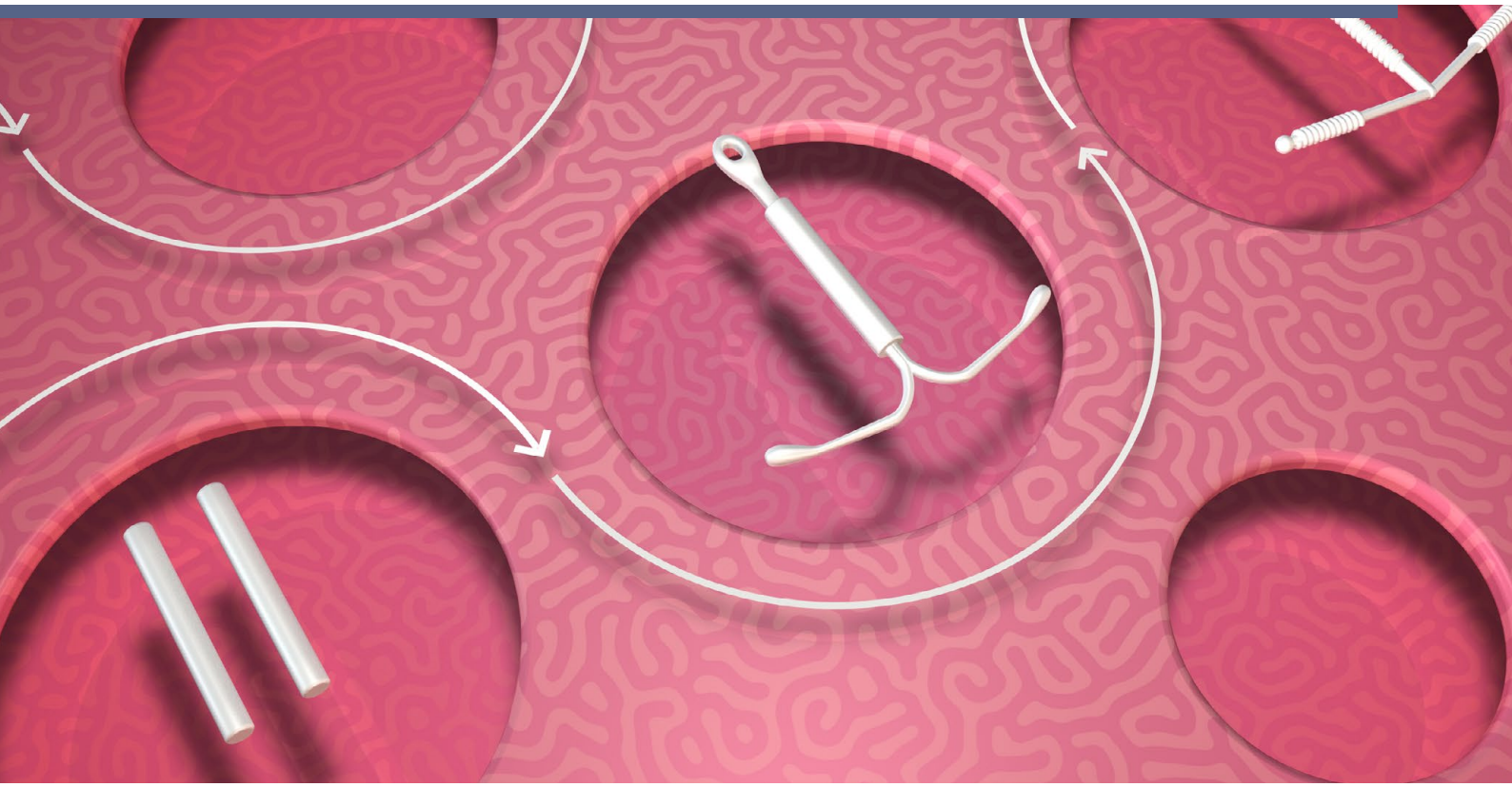
This article is available online at:
www.bpac.org.nz/2021/contraception/depot.aspx





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

The **approved duration of use of Mirena** in New Zealand has been extended to eight years for contraception (no changes have been made to the licensed duration of use for other indications, e.g. heavy menstrual bleeding). This article will be revised in due course to reflect these changes.

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/**

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

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.[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

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

their normal menstrual cycle, approximately 25 – 35% report irregular or infrequent bleeding, and approximately 20% report amenorrhoea.[6] The remainder of patients experience 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**

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

Weight gain unlikely

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

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]

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**

Extended use of an IUC is possible in some cases

June, 2025: Mirena is now approved in New Zealand for up to **eight years for contraception**. For other indications (heavy menstrual bleeding, endometrial protection in patients taking oestrogen replacement treatment), the licensed duration of use is up to **five years**. New Zealand guidelines have not yet been updated, but the manufacturer states that for heavy menstrual bleeding, if symptoms have not returned after five years, continued use of Mirena may be considered but it should be removed or replaced after eight years at the latest. For endometrial protection during oestrogen replacement treatment, Mirena should be removed or replaced after five years. This article will be revised in due course to reflect these changes.

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 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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