

Emergency contraception: Oral and intrauterine options



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Background

Emergency contraception can be used to prevent pregnancy where contraception has not been used, or there has been contraceptive misuse or failure. Australian women have three options for emergency contraception: two types of oral pills (levonorgestrel [LNG]-containing pill and ulipristal acetate [UPA]) and the copper intrauterine device (IUD). Both pills are available from pharmacies without prescription, whereas the copper IUD requires insertion by a trained provider.

Objective

The objective of this article is to describe the indications, efficacy and contraindications for use of the three emergency contraceptive methods available in Australia.

Discussion

Emergency contraception can potentially reduce the risk of unplanned pregnancies. The oral methods have similar side effects, but UPA is more effective than LNG and can be used up to five days after intercourse. The copper IUD is the most effective method, and provides ongoing contraception for up to 10 years. Factors to consider when recommending one option over another include time since unprotected sex, body mass index and use of enzyme-inducing medicines.

Emergency contraception methods, including oral and intrauterine methods, inhabit a unique position among contraceptive methods because they can be used after sex, rather than before or during, to avert pregnancy. Oral emergency contraceptive methods are the most widely used, but are not as effective as other modern methods of contraception such as the oral contraceptive pill. In addition, the impact of oral emergency contraceptive use on unintended conception at a population level has not been established.¹ However, at the individual level, data from clinical trials indicate that intrauterine devices (IUDs) will prevent 99% of pregnancies,² and oral emergency contraception will prevent around two-thirds of pregnancies if commenced within 24 hours of unprotected sexual intercourse.³⁻⁶ Copper IUDs are less widely recognised or used as a form of emergency contraception despite being significantly more reliable (Table 1). Copper IUDs have remained underused in many settings because of a lack of knowledge among women about their availability and efficacy, as well as a lack of access to skilled providers, an issue that is particularly relevant in Australia.^{7,8}

What methods are available in Australia?

Three methods of emergency contraception are available in Australia: two oral methods and the copper IUD. The two oral methods are the levonorgestrel (LNG) and ulipristal acetate (UPA) tablets. Both are available without a prescription as dedicated

Table 1. Comparison of efficacy and cost of emergency contraceptive methods available in Australia^{2,5}

Emergency contraceptive method	Pregnancy rate if method taken within 120 hours	Cost of method (not available on PBS)
LNG	2.2%	\$18–25
UPA	1.4%	\$40–50
Copper IUD	<1%	\$90–100 for device plus additional insertion fee if procedure undertaken outside public hospital

IUD, intrauterine device; LNG, levonorgestrel; PBS, Pharmaceutical Benefits Scheme; UPA, ulipristal acetate

products over the counter from pharmacies. LNG and UPA work by preventing or delaying ovulation (ie before the luteinising hormone [LH] surge) and are not effective once ovulation has occurred (ie after the LH surge).^{9,10} Unlike LNG, however, UPA can prevent pregnancy even if taken during the LH surge but before its peak.^{11,12} The emergency copper IUD is the most effective of the three methods and also provides ongoing contraception for up to 10 years if left in situ.¹³

Levonorgestrel emergency contraception

The approved regimen for LNG emergency contraception is one 1.5 mg tablet to be taken orally as soon as possible and within 72 hours of unprotected intercourse. *Contraception: An Australian clinical practice handbook* also notes that if the dedicated products are unavailable, the 30 µg LNG progestogen-only pills can be used. This requires the woman to take 25 levonorgestrel 30 µg tablets twice, 12 hours apart (50 tablets in total).¹⁴ LNG (1.5 mg) is licensed for use up to 72 hours after unprotected sex, but has some efficacy up to 96 hours (four days). There is evidence that the sooner LNG is taken after unprotected sexual intercourse, the more effective it is. The risk of pregnancy increases nearly sixfold if taken on day five after unprotected sexual intercourse, compared with day one.¹⁵

The dose of LNG should be doubled (3 mg) if the patient is using a liver enzyme-inducing drug and is not suitable for a copper IUD. However, as the efficacy of LNG may be reduced by drugs that induce liver enzymes (eg rifabutin, rifampicin, phenytoin, phenobarbital, carbamazepine, St John's wort), it is preferable to recommend the copper IUD as an alternative.¹⁶ If vomiting occurs within two hours of LNG ingestion, the dose should be repeated.¹⁴ The risk of oral LNG emergency contraception failure is possibly greater in women who are obese, compared with women with a body mass index (BMI) in the healthy range. Additional counselling and advice for women who are obese should be given, and the option to use UPA or a copper IUD as alternatives should be advised.^{17,18} There are few contraindications to the use of LNG to emergency contraceptive (Table 2).

Ulipristal acetate

The approved regimen for UPA, a selective progesterone receptor modulator, is one 30 mg tablet to be taken orally within 120 hours (five days) of unprotected sexual intercourse.¹⁹ UPA is more effective than LNG; data from a meta-analysis has found greater efficacy of UPA, compared with LNG emergency contraception, at 24 hours and 72 hours after unprotected intercourse (with the greatest effect if taken within 24 hours).⁵ In addition, UPA is effective within 120 hours (five days) of unprotected sexual intercourse, compared with 72 hours (three days) for LNG. However, the side effect profile is similar for both medications.^{4,5}

The effectiveness of UPA can be reduced by concurrent or subsequent use within five days of progestogen-containing

contraception or drugs. Therefore, hormonal contraception should not start until five days after UPA administration. There are no safety data on UPA and breastfeeding, so women should be advised to cease breastfeeding (ie express and discard the milk) in the week following UPA intake. LNG emergency contraception or copper IUD can be recommended instead as these are safe to use while breastfeeding. Efficacy with UPA may be reduced by liver enzyme-inducing drugs (eg rifabutin, rifampicin, phenytoin, phenobarbital [phenobarbitone], carbamazepine, St John's wort), and a copper IUD should be recommended as an alternative. If vomiting occurs within three hours of ingestion, a repeat dose is recommended according to the product information.¹⁴

Copper IUDs

The copper IUD is the most effective method of emergency contraception, with failure rate of <1%, and may be inserted up to five days after ovulation. Copper IUDs have the added advantage of providing ongoing contraception for up to 10 years.¹⁰ The main mechanism of action of copper IUDs is inhibition of fertilisation as the copper ions released from the device have a toxic effect on sperm, which affects their mobility and viability, and on ova. In rare cases where fertilisation does occur, implantation is prevented because of the inflammatory response in the endometrium. Screening for sexually transmissible infections (STIs) is indicated in women who are considered at higher risk of STIs (ie patients <25 years of age, >1 sexual partner in past 12 months, recent change in partner), but should not prevent use of an IUD for emergency contraception.²⁰ There is no evidence to support the use of the LNG-IUS (ie Mirena) as emergency contraception, and it is not approved for this indication. In Australia, access to emergency copper IUD insertions is limited partly because knowledge of its use as an emergency contraception method is not widely appreciated and because few practitioners provide this service.

Indications for emergency contraception

Emergency contraception should be recommended where conception is not desired but contraception has not been used, or where there has been contraceptive misuse or failure. Indications for emergency contraception in women already using one of the modern contraceptive methods available in Australia are shown in Table 3. While there is a potential for conception on most days of the menstrual cycle (as ovulation is unpredictable), the risk of conception is at its highest when unprotected sexual intercourse occurs during the six days leading up to and including the day of ovulation.^{21,22} For women who are not using any contraception, a menstrual history is important. Establishing the timing of unprotected sexual intercourse relative to ovulation in that cycle needs to be estimated because if ovulation is thought to have occurred, a copper IUD is the recommended option. In a postpartum woman, pregnancy is possible as early as day 21 after delivery unless all criteria for lactational amenorrhoea are

Table 2. Comparison between emergency contraception methods¹⁴

	Levonorgestrel (LNG) emergency contraceptive	Ulipristal acetate (UPA)	Copper intrauterine device (IUD)
Effectiveness	Not as effective as UPA or copper IUD May have reduced efficacy with increased BMI >30 kg/m ²	Most effective oral method May have reduced efficacy with increased body mass index >30 kg/m ² (but to a lesser extent than LNG emergency contraceptive)	Most effective method Not affected by body weight
Access	Available without prescription	Requires prescription at time of writing, will be available over the counter in February 2017	Requires insertion by a trained practitioner
Time frame after unprotected intercourse	Licensed up to 72 hours but proven efficacy up to 96 hours off-label Limited if any efficacy 96–120 hours	Licensed up to 120 hours	120 hours with no loss of efficacy for five days
Major contraindications, precautions and medication interactions	Allergy and hypersensitivity Severe liver disease Known pregnancy Interaction with liver enzyme-inducing medications (advise double dose [off-label])	Allergy and hypersensitivity Severe liver disease Severe asthma insufficiently controlled by oral glucocorticoids Known pregnancy Interaction with liver enzyme-inducing medications (no recommendation regarding a double dose)	Current pelvic infection or distortion of uterine cavity Known pregnancy No medication interactions
Potentially affected by diarrhoea or malabsorption	Yes	Yes	No
Side effects and risks	Headache, dysmenorrhoea, nausea, vomiting and altered vaginal bleeding pattern Advise repeat dose if vomiting within two hours (according to product information)	Advise repeat dose if vomiting within three hours (according to product information)	Possible initial altered bleeding pattern and probable ongoing increased menstrual blood loss. Small risk of perforation, infection and expulsion
Breastfeeding	Evidence suggests that it can be used safely in breastfeeding women with no need to interrupt feeding (off-label recommendation)	Breastfeeding women are advised to express and discard breast milk for one week after UPA is taken	Safe to use after four weeks postnatal
Ongoing contraception	Women can choose to initiate a hormonal method of contraception immediately using Quick Start	Cannot initiate or restart hormonal method of contraception immediately using Quick Start because of potential reduction in UPA effectiveness (a delay of five days is advised with use of condoms or abstinence in the interim and then until the method becomes effective)	Provides ongoing effective long-term contraception for up to 10 years

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met (ie fully breastfeeding, no return of the menses and within six months of delivery).¹⁶ After a miscarriage, abortion, ectopic pregnancy or uterine evacuation for gestational trophoblastic disease (GTD), pregnancy can occur as early as day five of the menstrual cycle.¹⁶

For women who use combined oral contraceptives, the risk of pregnancy is related to which pill(s) they take and how many have been missed. The greatest risk is when the hormone-free interval is extended or two or more pills are missed, especially at the start or end of the pack. Missing one progestogen-only pill by

more than three hours warrants emergency contraceptive use. There may be a risk of pregnancy if a progestogen-only implant or LNG-IUS has exceeded its recommended duration of use.

Emergency contraceptive method to recommend

The decision about which emergency contraceptive method to recommend depends on a number of factors:

- The timing of the presentation from unprotected sexual intercourse – if the presentation is at or after 72 hours following unprotected sexual intercourse and oral emergency contraception is requested, UPA has the greatest proven efficacy (LNG emergency contraception has proven but reduced efficacy). If there is a chance that ovulation has occurred, then the copper IUD is the only method that will be effective.
- The risk of further unprotected sexual intercourse and pregnancy risk if there is a delay in commencing ongoing contraception – hormonal contraception cannot be commenced within five days of UPA, but can be started immediately with LNG emergency contraception.
- High BMI – UPA or the copper IUD are the preferred options over LNG emergency contraception if the woman has a high BMI.
- Use of enzyme-inducing drugs – UPA and LNG emergency contraception efficacy can be reduced if the patient is taking

enzyme-inducing drugs. The best option is the copper IUD, but the LNG emergency contraception dose can be doubled to 3 mg as recommended by the Faculty of Family Planning and Reproductive Healthcare (UK).¹⁶

- Cost may be a consideration – LNG is \$18–25, UPA emergency contraception is available on private prescription for around \$40–\$50. The cost of the copper IUD on a private prescription is approximately \$90–\$100, with additional costs incurred for insertion if this is not undertaken in a public hospital setting.

Additional responsibilities of emergency contraception providers, including for young women

When assessing a woman requesting emergency contraception, providers should also provide information about ongoing contraception, if needed, and about STI testing as appropriate. Arrangements should be made for medical review to exclude ongoing pregnancy if the next period is abnormal or delayed by more than seven days in the cycle in which emergency contraception has been used. Information and advice about what a woman should do if the emergency contraceptive method fails and pregnancy occurs should also be provided. The law in all Australian states and territories supports provision of contraception, including emergency contraception, to young women assessed as being mature minors, with no legal lower

Table 3. When to use emergency contraception¹⁶

Contraceptive method	Reason for method failure and when to use emergency contraception
Hormonal methods of contraception	Failure to use additional contraceptive precautions when starting the method
Combined oral contraceptive pill	Two or more hormone (active) pills are missed in the week before and/or the week after the hormone-free interval and unprotected sex occurs in the hormone-free interval or in week one
Combined hormonal vaginal ring	Extension of ring-free interval by >48 hours Emergency contraception is indicated if ring removal occurs in week one and there has been unprotected sexual intercourse or barrier failure during the hormone-free interval or week one
Progestogen-only pill	Late or missed pill (>3 hours late) and unprotected sex, or barrier failure has occurred before effectiveness has been re-established (ie 48 hours after restarting)
Progestogen injection	Unprotected sex or barrier failure has occurred >14 weeks since last injection of depo-medroxyprogesterone acetate or within the first seven days after late injection
Intrauterine contraception	Intrauterine device removal without immediate replacement, partial or complete expulsion of device, missing threads and device location unknown. Emergency contraception should be advised if there has been unprotected sex in the seven days prior to removal, perforation, partial or completed expulsion. Oral emergency contraception is indicated if there has been unprotected sexual intercourse in the past five days. Depending on the timing of unprotected sexual intercourse and time since intrauterine device known to be correctly placed, it may be appropriate to fit another copper IUD for emergency contraception
Implants	Implant expired and unprotected sex has occurred

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limit for provision. Doctors and community pharmacists should be well equipped to make an assessment according to Gillick principles and to supply accordingly.²³

Ongoing contraception: Timing of initiation after oral emergency contraception

The efficacy of LNG emergency contraception is not affected by hormonal contraception and, therefore, immediate commencement of reliable, ongoing contraception is possible (Quick Start). The Quick Start method as described on page 9 of *Contraception: An Australian clinical practice handbook* notes that it is:¹⁴

used to describe starting a hormonal method of contraception immediately or soon after the consultation even if the woman is beyond day 1–5 of the menstrual cycle when it may be impossible to exclude pregnancy.

This method cannot be used before insertion of an IUD, however, as pregnancy needs to be excluded. This precludes immediate provision after both oral emergency contraception methods.

Progestogens can reduce the effectiveness of UPA in delaying ovulation, so initiation of either a progestogen-only method or a combined hormonal method should be delayed by five days after UPA emergency contraception. Additional protection from pregnancy with condoms is therefore required in the subsequent weeks before the hormonal contraception again becomes effective after this delayed start. For the combined oral contraceptive method, this is for the five days after UPA use and an additional seven days for a standard pill and nine days for Qlaira. For the progestogen-only pill, this is until two days after recommencement (three pills taken).¹⁴

Key points

- Three options for emergency contraception are available in Australia; each option has its place in therapy.
- Providers should be well versed with how each method works, when to recommend one over the other, their side effects, and be able to advise women on ongoing contraception and STI testing.

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