Intrauterine contraception

A best practice approach across the reproductive lifespan

DEBORAH BATESON MA(Oxon), MSc(LSHTM), MB BS
KATHLEEN McNAMEE MB BS, FRACGP, DipVen, GradDipEpiBio, MEpi

Intrauterine contraception can provide an effective 'fit and forget' form of contraception for women of all reproductive ages.

Intrauterine contraception (IUC) provides a first-line, highly effective and cost-efficient long-acting reversible contraceptive (LARC) option for women of all reproductive ages. Uptake of IUC is relatively low in women in Australia at about 5% compared with, for example, 16% in Sweden.[1]

IUC use in Australia

Two types of IUC are currently available in Australia: copper-bearing intrauterine devices (Cu-IUDs), which last five or 10 years depending on the device used (Figure 1a), and the levonorgestrel-releasing intrauterine system (LNG-IUS), which lasts five years (Figure 1b). Both types of IUC provide 'fit and forget' reversible contraception that is more than 99% effective with both 'perfect' and 'typical' use.[2]

IUC is safe to use during lactation and there are no drug interactions to consider.[3] The LNG-IUS significantly reduces menstrual blood loss and dysmenorrhoea and can be used for endometrial protection in women using menopausal hormone therapy.[4-6] Cu-IUDs can be used when there is a contraindication to or preference against hormonal methods of contraception.[3] They also provide highly effective emergency contraception if inserted within five days of unprotected intercourse.[7]

Characteristics of these two types of

Figures 1a and b. a (left). Copper-bearing intrauterine device. b (right). Levonorgestrel-releasing intrauterine system.

MedicineToday 2016; 17(3): 55-61

Dr Bateson is Medical Director, Family Planning NSW. Dr McNamee is Medical Director, Family Planning Victoria.

TABLE 1. COMPARISON OF THE LEVONORGESTREL-RELEASING INTRAUTERINE SYSTEM (LNG-IUS) AND COPPER-BEARING INTRAUTERINE DEVICE (CU-IUD)

Features	LNG-IUS	Cu-IUD
Device	Plastic frame, sheath releases an average of 14 µg levonorgestrel per day	Copper banding with a plastic frame
PBS listed	For contraception or idiopathic menorrhagia	Private script only
Becomes effective	Up to 7 days after insertion	Immediately
Duration of use	5 years	5 or 10 years depending on the device used
Extended use	In women aged ≥45 years at the time of insertion, a device can be used for at least 7 years or until age 55 years if amenorrhoeic (off-label use); no extended use for endometrial protection during menopausal hormonal therapy	In women aged ≥40 years at the time of insertion, a device can be used until menopause (1 year after last menstrual period if aged ≥50 years or 2 years if less than 50 years)
Additional uses	Management of heavy menstrual bleeding, dysmenorrhoea, endometrial protection during menopausal hormone therapy	Emergency contraception
Contraindications specific to device (see Table 2 for contraindications to each device)	MEC 4: current breast cancer MEC 3: breast cancer not active for past 5 years, severe liver disease or liver tumours develop, arterial vascular disease	None specific to the device
Side effects specific to device	Irregular bleeding or spotting may occur in first few months; about 20% of women become amenorrhoeic; some women may experience systemic hormonal side effects including acne, headache and breast tenderness. Usually settle within a few months	Menstruation likely to be heavier and of longer duration
Use as emergency contraception	No	Yes (inserted within 5 days of unprotected intercourse)
Masks menopause	Possible; device can result in amenorrhoea but will not mask vasomotor symptoms	No

Abbreviation: MEC = medical eligibility criteria.

IUC are listed in Table 1. Some common examples of when IUC is the optimal form of contraception are included in the case studies in the Box.[8]

Medical eligibility criteria for the use of IUC

The medical eligibility criteria (MEC) system supports the safe provision of contraception and is a useful framework within which to consider contraindications to IUC.[3,9] The categories of MEC are as follows.

- MEC category 1: a condition for which there is no restriction for the use of the contraceptive method.
- MEC category 2: a condition where the advantages of using the method generally outweigh the theoretical or proven risks.
- MEC category 3: a condition where the theoretical or proven risks generally outweigh the advantages of using the method. The provision of a method requires expert clinical judgement and/or referral to a specialist contraceptive provider, because use of the method is not usually recommended unless other more appropriate methods are not available or acceptable.
- MEC category 4: a condition that represents an unacceptable risk if the contraceptive method is used.

Contraindications to the use of IUC

There are few absolute contraindications to the use of IUC (Table 2) and it is a suitable first-line option for most women, including those who are young and/or nulliparous.[10] Being HIV-positive or at high risk of STIs is no longer a strong

CASE STUDIES DEMONSTRATING WHEN TO CONSIDER THE USE OF INTRAUTERINE CONTRACEPTION

Case study 1. Migraine with aura precluding the use of hormonal contraceptives containing oestrogen

Lara, 19 years, has a history of migraine with aura and requests contraceptive advice as she has started a new relationship.

Six months ago she had an abortion at 7 weeks' gestation after becoming pregnant while using the progestogen-only pill. As Lara's migraine with aura precludes the use of oestrogen, her GP discusses her contraceptive options of the contraceptive implant, contraceptive injection and intrauterine contraception (IUC). After hearing the advantages and disadvantages of each, Lara says she would like to try the levonorgestrel-releasing hormonal intrauterine system (LNG-IUS).

Her GP organises self-collected vaginal swabs for chlamydia and gonorrhoea testing before referring Lara to a local GP experienced in IUC device insertion. As Lara's menstrual periods are slightly irregular and it may take a few weeks for an insertion appointment, her GP suggests she has a single injection of depot medroxyprogesterone acetate (DMPA) as a 'bridging' method of contraception while waiting for the appointment and to allow for flexibility with insertion timing. He also advises her to use condoms with her new partner.

Case study 2. Preference for a nonhormonal method of contraception in a breastfeeding woman

Maria, 32 years, is partially breastfeeding and amenorrhoeic following a vaginal delivery 12 weeks ago. She is worried about becoming pregnant again too quickly and tells her GP that she did not use contraception when she had sexual intercourse for the first time since delivery nine days ago.

Maria prefers a nonhormonal method of contraception and has heard about the copper-bearing intrauterine device (Cu-IUD) from a friend. Her GP explain its advantages and disadvantages, including the likelihood of having heavier more prolonged periods. Maria is happy to try the method and as a trained inserter, her GP organises a suitable insertion appointment time.

Given that Maria had intercourse nine days earlier, it is too late to use the Cu-IUD as a method of emergency contraception. Although a pregnancy test today is negative, her GP explains that it will need to be repeated three weeks after last unprotected intercourse in order to confidently exclude pregnancy.

Maria is happy to abstain from intercourse until the Cu-IUD is inserted but is also glad to hear that it will be effective immediately.

Case study 3. Contraception in an older woman with hypertension and heavy menstrual bleeding

Susan, 47 years, has a body mass index of 38 kg/m^2 and well-controlled hypertension. She is about to start a sexual relationship with someone she has met on the internet and is not sure if she needs contraception at her age.

Her GP finds out that Susan's menstrual periods are regular but have become increasingly heavy over the past six months. He therefore advises her that although her fertility is low relative to younger women, there is still a risk of pregnancy.

Although Susan had been taking the combined contraceptive pill some years previously, this would not be a suitable option now given her cardiovascular risk factors. Her GP discusses the option of the LNG-IUS, which would provide contraception and control her heavy menstrual bleeding.

Because of Susan's history of increasingly heavy menses, her GP arranges blood tests and a high-quality transvaginal pelvic ultrasound to exclude endometrial pathology before IUC device insertion. The tests show low iron stores but no uterine abnormalities so he arranges for an LNG-IUS to be inserted at the local family planning clinic.

Susan is advised to use condoms with her new partner and is delighted to hear that as the LNG-IUS will be inserted after the age of 45 years, she can use the same device for contraception for at least seven years.[8]

TABLE 2. INTRAUTERINE CONTRACEPTION: MEDICAL ELIGIBILITY CRITERIA CATEGORIES FOR SIGNIFICANT CONDITIONS[3]

Condition		MEC category	
		Cu-IUD	LNG-IUS
Personal characteristics and reproductive history			
Postpartum: breastfeeding or nonbreastfeeding, including post-caesarean section	48 hours to 4 weeks	3	3
	Puerperal sepsis	4	4
Immediate post-septic abortion		4	4
Arterial vascular disease			
IHD or stroke that develops during use (use of LNG-IUS is MEC 2 and Cu-IUD is MEC 1 in women with pre-existing disease)		1	3
Breast and reproductive tract conditions			
Current breast cancer		1	4
Previous breast cancer with no evidence of disease for at least 5 years		1	3
Unexplained vaginal bleeding (suspicious for serious condition) before evaluation – initiation (use of either method is MEC 2 if develops during use)		4	4
Gestational trophoblastic disease (includes hydatidiform mole, invasive mole and placental tumour) – persistently elevated beta-hCG levels or malignant disease		4	4
Cervical cancer awaiting treatment – initiation (use of either method is MEC 2 if develops during use)		4	4
Endometrial cancer awaiting treatment* – initiation (use of either method is MEC 2 if develops during use)		4	4
Ovarian cancer awaiting treatment – initiation (use of either method is MEC 2 if develops during use)		3	3
Uterine fibroids, with distortion of the uterine cavity		3	3
Distorted uterine cavity (any congenital or acquired uterine abnormality distorting the uterine cavity in a manner that is incompatible with an IUC device insertion)		3	3
Current pelvic inflammatory disease – initiation (use of either method is MEC 2 if develops during use)		4	4
Chlamydial or gonorrhoeal infection or purulent cervicitis – initiation (use of either method is MEC 2 if develops during use)		4	4
HIV infection/AIDS			
HIV infected and using antiretroviral therapy		2/3	2/3
Gastrointestinal conditions			
Severe (decompensated) cirrhosis		1	3
Hepatocellular adenoma and malignant liver tumour		1	3

*The LNG-IUS is sometimes used as treatment for early-stage endometrial cancer in women wishing to preserve fertility.

Adapted from: Faculty of Sexual and Reproductive Healthcare. UK medical eligibility criteria for contraceptive use 2009. London: Faculty of Sexual and Reproductive Healthcare, RCOG; 2009.[3]

Abbreviations: AIDS = acquired immunodeficiency syndrome; beta-hCG = beta human chorionic gonadotrophin; Cu-IUD = copper-bearing intrauterine device; HIV = human immunodeficiency virus; IHD = ischaemic heart disease; IUC = intrauterine contraception; LNG = levonorgestrel; LNG-IUS = levonorgestrel-releasing hormonal intrauterine system; MEC = medical eligibility criteria; TIA = transient ischaemic attack.

TABLE 3. PRIMARY CARE WORK-UP FOR INSERTION OF AN INTRAUTERINE CONTRACEPTION DEVICE

Work-up	Factors to consider
Obstetric and gynaecological history	Parity and delivery history, previous gynaecological surgery or procedures
Vaginal bleeding pattern	Abnormal bleeding including recent onset of heavy menstrual bleeding, requires investigation including a transvaginal pelvic ultrasound before insertion
Sexual history	Consider screening for STIs including chlamydia and gonorrhoea prior to or at the time of insertion in asymptomatic women; symptoms consistent with an STI or pelvic infection require investigation with endocervical swabs
Difficulty with speculum examinations, past history of sexual abuse	Insertion under light sedation or general anaesthetic may be preferable
Exclusion of pregnancy at time of insertion	Pregnancy is excluded if the woman: • is within 5 days of the start of a normal menstrual period • has not had unprotected intercourse since the start of the last normal menstrual period • has consistently and correctly used another method of contraception • has not had unprotected intercourse for 21 days and has a negative pregnancy test • is within 21 days postpartum or 5 days post-abortion
Physical examination	Can be performed just before insertion: assess size and position of the uterus, check cervix for evidence of infection, check for presence of device threads if removal and reinsertion is planned
Cervical screening	Perform if due*

* Ensuring women are up to date with cervical screening before referral for IUC device insertion avoids removal of the device if treatment of the cervix is required for cervical dysplasia.

contraindication to the use of IUC, and IUC users who contract chlamydia do not appear to be more at risk of developing pelvic inflammatory disease (PID) than non-IUC users.[11] Both types of IUC are suitable for women with a history of venous thromboembolic disease.

There are few notable absolute or strong contraindications to the use of IUC. Use of either type of IUC in women with a current pelvic infection and use of the hormonal LNG-IUS in women with recent hormone-dependent cancers is absolutely contraindicated.[3] Also, IUC is strongly contraindicated in women with significant distortion of their uterine cavity.[3] The risks and complications related to the insertion of an IUC device include:[8,12]

- vasovagal reaction
- inability to insert
- increased infection risk confined to first 20 days after insertion (less than one per 300 insertions) then reverts to baseline risk
- perforation risk in about two per 1000 insertions
- expulsion rate of about 5%.

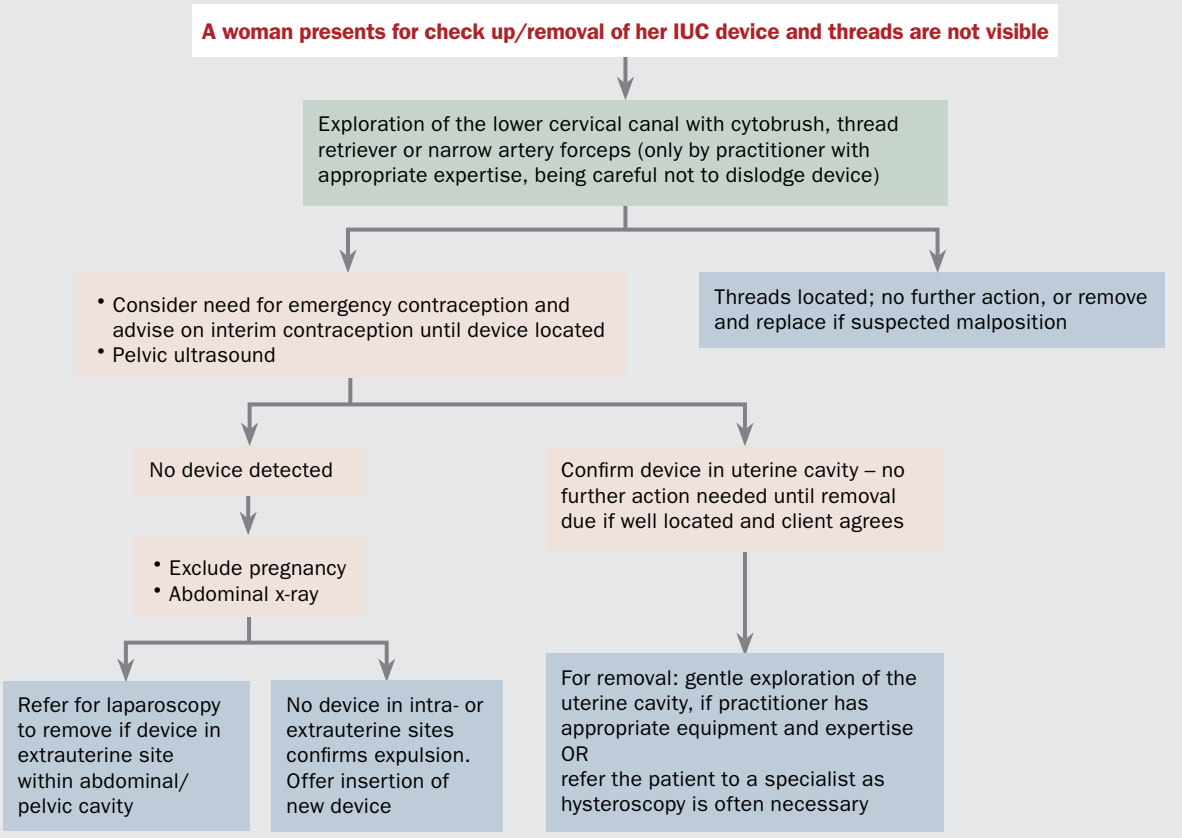
IUC devices can be inserted in a primary care setting by trained clinicians. Table 3 provides an overview of a patient work-up before an IUC device is inserted.

Managing IUC-related issues

Post-insertion discomfort or pain

The amount of discomfort or pain experienced after insertion of an IUC device

MANAGEMENT OF A WOMAN WITH MISSING IUC THREADS



Adapted from: Guillebaud J. Contraception: your questions answered. London: Churchill Livingstone; 2004.
Abbreviation: IUC = intrauterine contraception.

varies. It may persist intermittently for some months. Persistent pain, particularly if accompanied by dyspareunia, warrants an ultrasound to determine position of the device as well as swabs for the investigation of infection. If the results of these investigations are normal, the woman can be reassured the pain is likely to settle without treatment.

Vaginal discharge

Some women experience an increase in vaginal discharge after insertion of an IUC device, thought to be due to irritation of the cervix from the threads. If the results of endocervical swabs for chlamydia and gonorrhoea and vaginal swabs for microscopy and culture are normal, no further management is needed.

Pregnancy with IUC in situ

If pregnancy is diagnosed with an IUC device in situ, the gestation should be determined. The presence of an ectopic pregnancy must be excluded. Although the absolute risk of an ectopic pregnancy is low, and reduced compared with the rate in women using no contraception, the proportion of pregnancies that are ectopic is increased in women using IUC, with a rate between 15 and 27%.[13]

If the threads are visible and the gestation is less than 12 weeks, the IUC should be removed as soon as possible. Removal is associated with a small risk of miscarriage but if the pregnancy continues with the IUC device remaining in place the risk of miscarriage is increased and there is a risk of premature delivery.[14] When no threads are visible or the gestation is beyond 12 weeks, prompt referral of the patient may allow for specialist removal of the device using ultrasound guidance. If it cannot be removed, close specialist monitoring of the pregnancy is warranted with attention paid to ensure the device is expelled at delivery.

Missing threads

Although often the threads have simply retracted into the cervical canal, until proven otherwise, the IUC device must be assumed to have been expelled if threads are not visible (see Flowchart). A pregnancy test and emergency contraception should be considered and alternative contraception should be arranged. A transvaginal pelvic ultrasound is required to confirm the presence or

absence of the device in the uterus.

If the device is not located and pregnancy has been excluded, a plain abdominal x-ray should be ordered to check for perforation of the uterus and device migration. Removal of extrauterine devices is determined on a case-by-case basis in the tertiary setting. If the device is appropriately located in the uterus it can be safely left until removal is desired.

Infection in the context of IUC use

There is a small risk of insertion-related infection in the first 20 days after IUC device insertion[15] and women should be advised to return for early review if symptoms occur. All women with symptoms and signs suggestive of PID who have an IUC device in situ must have a course of antibiotics initiated immediately, with review after 48 hours, or be referred to hospital if symptoms are severe.[16] If the condition has improved within 48 hours the IUC device may be retained but if there is no improvement, it should be removed.

IUC users at risk of STIs should be advised about the simultaneous use of condoms. Women who contract chlamydia or gonorrhoea without any signs or symptoms of PID can be treated according to the *Australian STI Management Guidelines for Use in Primary Care*[17] and, if desired, the IUC device can be retained.

Conclusion

IUC provides highly effective and cost-efficient contraception for women across the reproductive lifespan from young nulliparous women to women at the time of the perimenopause. The MEC framework supports the safe provision of IUC for women who make an informed decision to use this method of contraception. MT

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COMPETING INTERESTS: Dr Bateson has provided expert advice to Bayer Healthcare and MSD as part of her role with Family Planning NSW but has not received any personal remuneration for these services. She has been supported to attend conferences by Bayer Healthcare and MSD. Dr McNamee has provided expert advice to Bayer Healthcare and MSD as part of her role with Family Planning Victoria but has not received any personal remuneration for these services. She has been supported to deliver a conference talk by MSD. Family Planning NSW receives sponsorship and consultancy fees and Family Planning Victoria receives consultancy fees and payment for training of medical practitioners from Bayer Healthcare and MSD.

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