Intrauterine Contraception: a practical approach to enhancing the safe uptake of IUDs

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Family Planning Alliance Australia
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Learning objectives
• Be aware of available Intrauterine Contraception (IUC) options including indications, side effects and contraindications
• Understand potential barriers to IUC use in Australia (and relatively low rate of uptake compared to other countries)
• Confidently describe medical eligibility and other factors which determine selection for IUC use
• Understand essential information and follow up advice to be provided for women planning IUC use
• Describe the management of complications with IUC use
• Be aware of new directions in intrauterine methods.....

The world of Intrauterine Contraception
• Lippes Loops & Dalkon Shield (now obsolete)
• Frameless IUDs (Gynaefix)
• Chinese rings

Currently available in Australia:
• Copper TT380®, TT380®short
• Multiload Cu375®
• Levonorgestrel-releasing IUD (IUS) Mirena®

How do you think our Australian uptake rates compare with other countries?
How often do you discuss intrauterine contraception with your patients?

Intrauterine Contraception (IUC) uptake in Australia
• IUC most widely used method worldwide yet only used by 3% of Australian women vs 17% in France & 21% in Sweden
• Study of 14 000 Australian GP consultations: of the 6% for contraception, 69% were for oral contraception; 8.6% injections; 4.9% implants; 2% IUC

Why do you think IUC uptake is so low in Australia?
IUC uptake in Australia: why is it so low?

- Low community awareness of IUC and its benefits; lag in accurate knowledge amongst health care providers
- Myths & misperceptions persist especially in relation to infection risk, future fertility & suitability for young women and nulliparous women
- 18% women having an IUC insertion at a FP clinic had been told it was an unsuitable method by a health professional/friend/family member despite meeting appropriate Medical Eligibility Criteria
- Limited IUC training opportunities; workforce & reimbursement issues; misinformation about insurance requirements; lack of clear referral pathways for insertion
- It’s time for a change!!

Intrauterine contraception: common features

- Highly effective due to minimal user action
- Rapidly reversible on removal
- Cost effective after initial ‘up-front payment’
- Non-oral option for women with malabsorption conditions
- Few MEC 4 or 3 conditions; no drug interactions; safe in breastfeeding; no effect on body weight; no effect on BMD
- Suitable for nulliparous women (MEC 1) & young women (MEC 2 < 20 years)
- Require insertion by trained health professional
- Low risk of complications
- Don’t prevent STIs but can be doubled up with condoms
- Require post-insertion check at 3-6 weeks

Duration of use for older women

<table>
<thead>
<tr>
<th>Age and circumstances</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥40 years at time of insertion of a Cu IUD</td>
<td>• Can be used until contraception is no longer required</td>
</tr>
<tr>
<td>Age ≥45 years at time of insertion of an LNG IUD</td>
<td>• Can be used for contraception for 7 years</td>
</tr>
<tr>
<td>Age ≥50 years, amenorrhoic and wishes to stop contraceptive use</td>
<td>• Check FSH levels and remove IUD after 1 year if serum FSH is ≥30 IU/L on two occasions 6 weeks apart</td>
</tr>
</tbody>
</table>

IUC: hormonal vs copper

**LNG-IUD**
- 20 µg LNG per day; plastic frame
- Toxic to sperm; thickens cervical mucus
- PBS listed; PI states 5 years use
- Significantly reduces menstrual bleeding
- Indicated for management of appropriately investigated HMB
- Hormonal side effects can occur
- MEC 4 breast cancer
- Protects the endometrium in women requiring HRT

**Copper-IUD**
- copper banding; plastic frame
- Not PBS listed (approx. $100)
- Toxic to sperm; endometrial effect
- PI states 5 or 10 years use depending on type
- Can increase menstrual bleeding and pelvic pain
- No hormonal contraindications or side-effects
- Immediately effective
- Provides highly effective Emergency Contraception

Contraceptive Effectiveness: a users guide

<table>
<thead>
<tr>
<th>method</th>
<th>Perfect use effectiveness %</th>
<th>Typical use effectiveness %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive implant</td>
<td>&gt; 99.9</td>
<td>99.9</td>
</tr>
<tr>
<td>Hormonal IUD</td>
<td>99.8</td>
<td>99.8</td>
</tr>
<tr>
<td>Copper IUD</td>
<td>99.4</td>
<td>99.2</td>
</tr>
<tr>
<td>Depot injection</td>
<td>99.8</td>
<td>94</td>
</tr>
<tr>
<td>Contraceptive Pill</td>
<td>99.7</td>
<td>91</td>
</tr>
<tr>
<td>Male condom</td>
<td>98</td>
<td>82</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>96</td>
<td>78</td>
</tr>
</tbody>
</table>

Adapted Trussell J, contraception 2011; 83 (5)

12-month continuation and satisfaction rates

<table>
<thead>
<tr>
<th>method</th>
<th>no. women using method</th>
<th>1-year continuation rate %</th>
<th>Proportion ‘strongly satisfied’ %</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNG-IUS</td>
<td>1890</td>
<td>87.5</td>
<td>70.4</td>
</tr>
<tr>
<td>Copper IUD</td>
<td>434</td>
<td>84.0</td>
<td>65.6</td>
</tr>
<tr>
<td>Contraceptive implant</td>
<td>522</td>
<td>83.3</td>
<td>54.8</td>
</tr>
<tr>
<td>Depot injection</td>
<td>313</td>
<td>56.6</td>
<td>42.3</td>
</tr>
<tr>
<td>Contraceptive Pill</td>
<td>478</td>
<td>55.1</td>
<td>41.0</td>
</tr>
</tbody>
</table>

Adapted Peipert JF, Zhao Q et al Obstet Gynecol 2011; 117: 1105-1113
Myth or truth:
Intrauterine contraception is associated with a high risk of infection & subsequent tubal infertility?

Complications with intrauterine contraception are generally uncommon

<table>
<thead>
<tr>
<th>Complication</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pelvic infection¹,²</td>
<td>6-fold increase in risk in the first 20 days (exact risk unknown but &lt;1 in 300 after which this returns to similar levels as in the general population)</td>
</tr>
<tr>
<td>Expulsion¹</td>
<td>Occurs in approximately 5% of users</td>
</tr>
<tr>
<td>Perforation¹</td>
<td>Occurs in up to 0.2% of insertions</td>
</tr>
<tr>
<td>Method failure¹</td>
<td>Very low (if pregnancy does occur with IUD in situ, it may lead to septic abortion and premature delivery)</td>
</tr>
<tr>
<td>Ectopic pregnancy²</td>
<td>Very low (intrauterine contraception reduces the overall risk of ectopic pregnancy but if failure occurs then the proportion of ectopic to intrauterine pregnancies is increased)</td>
</tr>
</tbody>
</table>


IUC and vaginal bleeding

LNG-IUD
- Initial endometrial thinning, glandular atrophy and stromal decidualisation causes frequent spotting during first 3 to 5 m; gradual reduction in the number of bleeding days and amount of blood loss; approx. 20% amenorrhoea
- Menstrual loss and dysmenorrhoea usually increase; spotting, heavier and prolonged bleeding common in the first 3 to 6 m; usually decreases with time

Cu-IUD
- Menstrual loss and dysmenorrhoea usually increase; spotting, heavier and prolonged bleeding common in the first 3 to 6 m; usually decreases with time

Counselling about expected changes in bleeding patterns may maximise continuation rates.

But remember not all bleeding is device related so exclude other causes (infection; cervical abnormalities; partial expulsion)

Intrauterine contraception: MEC 4

<table>
<thead>
<tr>
<th>MEC Category 4 Absolute contraindication</th>
<th>Medical condition (list not exhaustive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Pelvic infection; post septic abortion</td>
<td>• Unexplained vaginal bleeding suspicious for serious underlying cause</td>
</tr>
<tr>
<td>• Current PID, purulent cervicitis</td>
<td></td>
</tr>
<tr>
<td>LNG-IUDs only</td>
<td>• Current breast cancer</td>
</tr>
</tbody>
</table>

Intrauterine contraception: MEC 3

<table>
<thead>
<tr>
<th>UKMEC Category 3 Strong relative contraindication</th>
<th>Medical condition (list not exhaustive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Significant distortion of the uterine cavity, e.g. submucous fibroids</td>
<td></td>
</tr>
<tr>
<td>LNG-IUD only</td>
<td>• Past history of breast cancer not active in the last 5 years</td>
</tr>
<tr>
<td></td>
<td>• Severe decompensated cirrhosis</td>
</tr>
<tr>
<td></td>
<td>• Hepatocellular adenoma, malignant hepatoma</td>
</tr>
</tbody>
</table>

Intrauterine contraception: MEC 3

Intrauterine contraception: MEC 2

MEC Category 2
Generally safe to use

Medical condition (list not exhaustive)

- Age <20 years
- Current VTE treated with anticoagulant
- Known thrombogenic mutation
- Valvular and congenital heart disease
- Increased risk of STIs
- High risk of HIV, current HIV/AIDS clinically well on antiretroviral therapy
- AIDS


Postnatal and post-abortal IUC use

- UK MEC supports insertion within 48 hrs or after 4+ weeks (MEC 1) (PI Mirena advises 6 weeks post vaginal delivery & 12 weeks post C-section)
- LNG-IUD considered safe in lactating women by World Health Organization
- Prospective, randomised trial in 320 lactating women showed no statistically significant differences between LNG and Cu-IUDs in breast-feeding continuation rates or infant physical growth parameters and development tests1
- Can be inserted immediately after a surgical abortion and after the second part of a medical abortion is complete


IUC assessment: physical examination

- Speculum examination to determine comfort with procedure and to assess cervical os
- Assess clinically for bacterial vaginosis; consider need for chlamydia/gonorrhoea test
- Cervical screening if due
- Bimanual pelvic examination assessing uterine position, size, shape and mobility
- Consider need for US referral (e.g. in case of HMB)
- Baseline blood pressure reading
- Pay attention to factors that may require gynaecology referral

Insertion options for women

- Primary care insertion by appropriately skilled practitioner
  - training available through Family Planning Organisations or previous hospital experience
  - non-procedural indemnity (check with insurer)
- Family Planning clinic (doctor and nurse-led insertions)
- Abortion clinic or sexual health service if offered
- Gynaecologist

IUC insertion in the primary care setting

- Prospective 12m study of 996 consecutive IUC insertions at FPQ & FPNSW
  - Successful insertion in 95%; complications rare (34 women)
  - 90% reported as 'easy' by inserting doctor including 80% in nulliparas; abandoned insertions associated with nulliparity and C-section only deliveries
  - Practitioners inserting fewer than 100 IUDs in previous 12m more likely to report insertions as ‘difficult’

Gynaecology referral warranted:

- Woman’s choice; practitioner’s choice
- HMB requiring further assessment
- Unsuccessful attempt(s) in primary care

Harvey C, Bateson D. et al. ANZJOG 2012; 52: 534-9

Myth or truth:

Intrauterine contraception should not be inserted in nulliparous women in the primary care setting?
Preparing the woman for her IUC insertion appointment: pre-insertion information

- Mechanism of action, duration of use
- Changes in bleeding patterns
- Differences in types of devices; efficacy
- Details of insertion procedure & required follow up
- Complications of pregnancy if method fails
- Side effects and other complications
- STI prevention (additional use of condoms if at risk)
- Importance of excluding possible early pregnancy at time of insertion (consider a 'bridging contraceptive method')

Timing of insertion: confidently excluding pregnancy

- LNG-IUD inserted day 1-5 of cycle; copper IUD inserted day 1-12 of cycle (both immediately effective; any other time then the LNG-IUD requires 7 days to become effective)
- Determine 'last period' was not an implantation bleed by asking if it was at the expected time, of usual duration and heaviness, and associated with premenstrual symptoms
- If oligomenorrhoeic/amenorrhoeic perform a pregnancy test (BUT chance of false negative with unprotected sex in the previous 3 weeks)
- Pregnancy can be reasonably excluded if the women is using a reliable contraceptive method

Post-insertion follow-up

- Scheduled 3 to 6 weeks after insertion to exclude infection, perforation and expulsion
- Take a directed history, perform a bimanual and speculum examination and document the following:
  - Bleeding patterns
  - Presence and length of string
  - Abnormal discharge or pain
  - Presence of any pelvic tenderness or masses

Timing of IUC removal: preventing pregnancy

- Recommended removal time is within the first few days of starting menses
- Another form of contraception or abstinence can be advised for 7 days prior to removal
- If the women has had intercourse in the past 7 days there is a small chance of implantation following IUC removal
  - The Emergency Contraceptive Pill can be offered
  - A follow-up pregnancy test is advised
- Removal can be performed at any time if there is no risk of pregnancy or if pregnancy is desired

Intrauterine Contraception troubleshooting

Case study 1: Joy is a peri-menopausal woman with heavy menstrual bleeding

- 46 years old (teacher)
- Presents for contraceptive advice
- Currently uses condoms for contraception, as she fell pregnant with her first child whilst taking the COCP
- Not keen on taking a pill every day
Further history.....

- Two children, aged 8 and 12, both born vaginally following uncomplicated pregnancies
- She reports increasingly heavy periods since the birth of her youngest child
  - Her cycle is regular, bleeding 6 days out of a 29 day cycle
  - She experiences clots and flooding, and is unable to leave the house on her heaviest day (time off work when periods occur on school days)
  - She experiences cramping on the heavy days, managed with NSAIDs
- Last Pap test 12 months ago (NAD)

On examination....

- BP 120/70
- General physical examination unremarkable
- BMI 27 kg/m²
- Gynaecological examination is unremarkable, with the uterus being anteverted, normal sized and mobile

Are any investigations necessary?

Further investigations

- Hb 120 g/L
- Iron studies low normal
- Pelvic ultrasound (in early follicular phase): normal sized uterus, 4 mm endometrium, 19 mm right ovarian follicle, no abnormality noted

What contraceptive options would you discuss with Joy?

Management approach

- Joy is interested in an LNG-IUD, as she wants effective contraception that does not involve taking daily tablets
- Reduced menstrual bleeding may be an added benefit

What information should now be provided to Joy?

On follow-up 2 years later...

- Joy returns for a Pap test 2 years after insertion
- Joy’s health is good, but she hasn’t been checking her LNG-IUD strings

On examination the vulva and vagina appear normal, with a healthy cervix but the IUD string is not visible! What would you do?

Management of missing IUC strings

- Exclude pregnancy and consider ECP and/or start additional contraception until the presence of IUD is established
- Consider possibility of perforation or expulsion; an ultrasound to check for presence of the IUD in the uterine cavity is essential first investigation
- If device is not found on ultrasound, perform a plain x-ray or limited CT scan (expulsion should never be assumed)
- A device which has perforated and lies outside the uterus will require laparoscopic removal
- A string that is within the cervical canal can sometimes be retrieved with gentle rotation of a cytobrush or use of narrow artery forceps or a thread retrieval device within the lower part of the canal (by practitioner with appropriate expertise)
Management of missing string

Joy is referred for a ultrasound which is unremarkable, and shows a fundally positioned LNG-IUD

How would you proceed?

On follow up another 2 years later

• Joy presents for her next Pap test. She is amenorrhoeic with frequent hot flushes. The device has been in place for 4 years
• She is now aged 51 years and is unclear whether she needs to continue with the IUD as contraception

How would you proceed?

Timing of removal at menopause

• Joy’s serum FSH levels are tested on two occasions 6 weeks apart and are ≥30 IU/L confirming that she is menopausal
• She is advised to return in 12 months to have the LNG-IUD removed and will then not require any further contraceptive advice

Case study 2: Lara is a young nulliparous woman

• 21 years (student)
• Presents for contraceptive advice
• Interested in a Copper-IUD
• Has tried the pill and contraceptive implant but says that hormones “just don’t agree with me”

Further history

• In a ‘mutually monogamous’ relationship for 2 years
• Using condoms as contraception
• Wants to change to a method which is ‘forgettable’
• No plans for pregnancy in near future
• Irregular cycles 4–5/26-40; occasional dysmenorrhoea; no inter-menstrual or post-coital bleeding

Information on all contraceptive methods is discussed including LNG-IUD and Copper-IUD. Lara decides she wants a Copper-IUD

On examination

• BP 120/70
• Speculum examination – nulliparous os, healthy cervix, minimal discharge
• Bimanual examination is unremarkable, with the uterus being antverted, normal sized and mobile

Are any investigations necessary?
Further investigations

- Pap test negative
- Bacterial vaginosis (BV) not detected clinically
- Chlamydia swab negative

Nulliparity:
Not a contraindication but insertion may be more difficult
Assess her capacity to manage insertion and the need for insertion under sedation to guide where you refer her
Timing of insertion: may be a challenge

Post insertion follow-up

- Lara has a Copper-IUD inserted on Day 10 of her next cycle
- Strings cut to 3 cm from external cervical os – documented
- The insertion is uncomplicated and Lara goes home with her partner
- She phones 36 hours later saying she has ongoing lower abdominal pain since insertion, taking naproxen regularly and now paracetamol and codeine

What is the differential diagnosis?

Differential diagnoses: post-insertion pain

- Perforation
- Pelvic inflammatory disease (PID)
- Partial expulsion of the IUD
- Malposition of the IUD
- Non-specific pelvic pain (uterine ‘irritability’)
- Non-IUD-related causes e.g. ovarian cause, gastrointestinal cause or UTI

On review

- Looks mildly distressed
- Abdomen soft, non tender
- Strings visible: 2 to 3 cm from external os
- Speculum and bimanual examination: mild central tenderness, no adnexal tenderness, no cervical motion excitation

What is your diagnosis now?

Diagnosis and management

- Likely non-specific
- Needs ultrasound to check position, analgesia and review
- Offer to remove if unable to tolerate pain

Follow up:
- US showed device in fundal position, no other abnormality detected
- Phone review next day – pain much improved; advise patient to contact the clinic if pain returns

Pain post-IUD insertion:
- Think Perforation, PID, Position, Pregnancy (4Ps)

Case study 3: Tara is a postnatal amenorrhoeic woman

- 21 years
- Presents for contraceptive advice
- Medically well with two previous pregnancies (uncomplicated vaginal delivery 6 weeks ago)
- Bottle feeding and amenorrhoeic
- Considering a LNG-IUD
- Has had unprotected intercourse last few days
Is an LNG-IUD suitable for postnatal breastfeeding women?

- Post-pauntum LNG-IUD insertions should be postponed until the uterus is fully involuted; generally not earlier than 6 weeks after delivery
- Pregnancy can be reasonably excluded if the woman is using a reliable contraceptive method.....
- The LNG-IUD is considered by the World Health Organization to be suitable in lactating women with no deleterious effect on infant growth/development

PV spotting develops 10 weeks later

- The LNG-IUD was inserted at 6 weeks (uncomplicated insertion)
- Has had daily spotting since insertion occasionally requiring a tampon or pad. It is driving her mad...
- The spotting is interfering with her sex life and she worries that it might continue for the next 5 years!

Responding to Tara’s concerns about spotting

- Explain that the LNG-IUD is associated with an overall reduction of blood loss due to its potent effect on the endometrium
- However, irregular spotting or bleeding may occur in the first few months of use due to the effect of continuous low dose progestogen on the endometrium. Some women may also experience prolonged bleeding in the first month
- At 6 months post-insertion, spotting occurs in about 25% of women but this decreases over time
- In breastfeeding women, the pattern of bleeding will vary due to the additional effect of ovulation suppression. Some women may experience amenorrhoea prior to resumption of ovulation whilst others may experience spotting

Responding to Tara’s concerns about spotting

- Evidence for the effective management of LNG-IUD related bleeding problems is limited
  - However, a trial of a combined hormonal contraceptive pill (any type) may be useful for 1–3 months in women who are able to use oestrogen. This will only control the bleeding for the time the pill is taken and will be followed by a withdrawal bleed
  - Explanation and reassurance are important as well as considering other possible causes of irregular bleeding such as a chlamydia infection or cervical abnormality

IUD Clinic at Danila Dilba: Darwin
Case study 4:
Toni presents with pelvic pain with an IUD in situ

- 34 years (lawyer)
- presents complaining of low abdominal pain and increased vaginal discharge for the last 2 days
- LNG-IUD inserted for contraception 2 years ago

On history and examination

- Toni has been with partner for 2 years but they have been "having some problems"
- Taking Panadeine for the pain
- Examination: Temp 37, abdomen tender but no rebound or guarding, speculum examination purulent discharge from cervix, IUD strings 2.5cm, PV exam - cervical excitation, no masses
- UA: leuc+++, nitrites 0, blood ++, Urine BHCG negative

How would you proceed?

- PID with IUD in-situ
- PID is a clinical diagnosis – pain, purulent discharge, cervical excitation, systemic signs of infection
- Endocervical swab for chlamydia & gonorrhoea
- Consider WCC, CRP
- Start immediate antibiotic treatment as per current guidelines (don’t wait for results)
- Pelvic Ultrasound if a mass present or not improving on antibiotics
- No sex for at least 7 days and partner treated (if STI-related)
- Reassess within 48-72 hours and at completion of treatment
- No need to remove the intrauterine method unless symptoms fail to resolve within the following 72 hours or unless the woman wishes removal

Actinomyces-like organisms

- Present in 2 - 25% of Pap smears of IUD users
- ALO on pap smear may be not be Actinomyces or may be non-pathogenic
- Actinomyces israelii can RARELY cause widespread PID with few symptoms
- A. israelii very difficult to culture; contact lab prior to swab
- Consider recall for discussion and assessment of signs and symptoms of PID
- If asymptomatic continuation with the device is appropriate
- Option of IUD removal +/- replacement after 2 cycles, weigh up risks of procedure and high re-colonisation rate
New directions in the IUC world

- Frameless IUDs
- Intrauterine Ball (IUB): highly elastic 3D structure; 12mm diameter; 300 mm² CU
- Immediate post-partum insertion
- Formalised ‘self-removal’
- Smaller IUDs

1Foster D et al. Contraception 90 (2014) 54–59

Jaydess® vs Mirena ®

- Smaller frame (28mm vs 32 mm horizontal width; 30 mm vs 32 mm vertical length) & narrower inserter tube (3.8 mm vs 4.4mm)
- Same insertion technique & timing
- 13.5mg vs 52mg LNG: lower release rate (14 µg vs 20µg daily) & serum levels (162 pg/ml vs 191 pg/ml at 1 year)
- Licensed for 3 vs 5 years (only for contraception)
- Silver ring to distinguish it on US and x-ray
- Theoretically and potentially easier to insert with less insertion pain but direct comparison studies lacking
- Effectiveness and expulsion rates similar
- Less likely to experience amenorrhoea (12% vs 20% in second 90 day reference period)
- Other side-effects similar
- Licensed by the TGA but unavailable; awaiting PBS listing

Take home messages

- Intrauterine contraception may be suitable for women of any reproductive age seeking long-term, highly effective contraception with minimal action required by the user
- Despite their proven advantages, intrauterine contraception appears to be underused in Australia
- Provision of evidence based information about contraceptive options is essential to support informed ‘woman-centred’ choice
- Understanding how to manage/refer for IUC-related complications is important for all primary care practitioners
- Consider IUC training (or know your referral pathways)