

# Take a fresh look at IUDs

## *Things have changed*

**BACKGROUND** Over the past few years, the intrauterine contraceptive device (IUD) has overcome many of the problems that had initially made it unpopular. Today it is probably the most cost effective reversible form of contraception available.

**OBJECTIVE** To examine the reasons for poor utilisation of IUDs in Australia and to describe recent developments in the field of intrauterine devices/systems.

**DISCUSSION** Myths concerning mechanisms of action and the potential for pelvic inflammatory disease, lack of familiarity, training and high insurance costs continue to limit the ability of general practitioners to fully utilise the potential of IUDs. The introduction of the levonorgestrel releasing intrauterine system has however, broadened the indication for IUDs from just being contraceptive to being therapeutic for several gynaecological conditions.

## Why aren't IUDs used more often in Australia?

Intrauterine devices (IUDs) are extremely effective, useful and well tolerated. Despite this they are not often used in Australia. In a recent study of contraceptive prevalence in Australia, more than 44% of all women aged 18-49 years reportedly use a method of contraception. The most commonly reported methods are:

- oral contraceptive pill (60%)
- condom (27%)
- IUD and natural methods less than 5% each.<sup>1</sup>

There are several reasons why IUDs remain unpopular. First, there exist many myths about IUDs, the two most important being that they bring about abortion and cause pelvic inflammatory disease (PID) and subsequent infertility. Second, the unpopularity of the IUD is due to lack of familiarity, lack of opportunities for training and high insurance costs.

### Myth number one

#### IUDs abort pregnancies

Many patients and indeed clinicians remain confused about exactly how IUDs act. A common myth is that an IUD allows fertilisation to occur

but not implantation and is therefore an abortifacient. The evidence clearly contradicts this view. The main effect of IUDs is to:

- interfere with sperm migration and sperm function, and
- block fertilisation.

The copper in copper containing IUDs is found in high concentrations in cervical mucus and impairs sperm migration.<sup>2,3</sup> This is demonstrated by the fact that fewer sperm are present in the tubes of IUD users than nonusers.<sup>4</sup> Furthermore, the sperm that are recovered from the fallopian tubes of IUD users have been found to be damaged and incapable of fertilisation.<sup>5</sup> Studies have shown that the flushed tubes and uterine cavities of women using IUDs do not contain fertilised ova.<sup>6</sup> One particular study monitored 30 women using IUDs by measuring serial beta-human chorionic gonadotropin levels for 30 months and did not observe any changes in levels,<sup>7</sup> especially the rise followed by an abrupt drop in levels characteristic of pregnancy interruption.

In contrast the levonorgestrel intrauterine system (IUS), like other progestogen containing forms of contraception is believed to have a contraceptive action through thickening cervical mucus, making it impenetrable to sperm.

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**Table 1. IUDs available in Australia**

Name	Cost	Maximum registered duration
Multiload	approximately \$70	5 years
Copper T 380A	approximately \$70	6 years (10 years UK and 13 years USA)
Mirena	approximately \$330	5 years

### Myth number two

#### IUDs cause PID

The legacy of the Dalkon shield in the 70s has been that in the minds of clinicians and women, IUDs have been associated with pelvic infection and infertility. However, early studies looking at this issue had serious methodological flaws. Choices of inappropriate comparison groups, over diagnosis of salpingitis in IUD users and an inability to control the confounding effects of sexual behaviour exaggerated the apparent risk.<sup>8</sup> Studies have since shown that the risk of upper genital tract infection is confined to the first 20 days after insertion<sup>9</sup> and thereafter the risk of contracting PID is the same as in controls.

#### System issues

The other barriers hindering general practitioners from recommending or inserting IUDs are more ‘system’ related than anything else. First, few GPs actually insert IUDs in their practice. This is probably due to the fact that medical insurance companies have designated IUD insertion as ‘procedural’ and therefore GPs who undertake IUD insertions are charged much higher premiums.

Second, GPs are not familiar with IUDs. As most IUDs are inserted in family planning clinics or the private rooms of gynaecologists, few GPs are taught how to undertake the procedure. They are also not familiar with removal techniques and because the rates of IUD use are so low in Australia, GPs are not accustomed to managing any side effects or complications that may occur. This lack of familiarity leads to decreased confidence when advising patients and to GPs not recommending the IUD to their patients. These same issues are also faced by gynaecologists<sup>10</sup> and have been reported among British GPs.<sup>11</sup>

The third main barrier is cost. Despite the fact that in the long term an IUD will cost the patient less than the monthly cost of contraception, it is difficult for patients to pay the cash up front. The IUD is not covered by the Pharmaceutical Benefits Scheme despite the fact that it is cheaper and has less serious risks than hormonal contraception. The IUDs currently available in Australia, their cost and maximum duration of use (as registered) are set out in Table 1.

#### When should an IUD be recommended to a patient?

General practitioners should always mention the option of IUDs when patients require contraception. This strategy will inform women of the availability of IUDs and allow them to come back to this method when ready.

The IUD is ideally suited to women who have already had a child.<sup>12</sup> The most common demo-

**Table 2. A summary of the evidence on IUDs, STDs and pelvic infection (adapted from Grimes 2000)<sup>8</sup>**

Issue	Highest level of evidence	Strength of conclusion	Conclusion
IUD as cause of PID	II-2	A	Risk related to insertion process
Tailstring as cause of PID	I	A	Monofilament tailstring not a vector for infection
IUD insertion in presence	II-2	C	Limited data but no evidence of increased risk compared with gonorrhoea or chlamydia without an IUD insertion
Acquisition of chlamydia by IUD user	II-2	B	No increase in risk
Acquisition of gonorrhoea by IUD user	II-2	C	Limited data
Levonorgestrel releasing IUS and upper genital tract infection	II-2	C	Conflicting data on protection against PID
Treatment of PID with IUD in situ therapy	I	B	No impaired response to antibiotic
Infertility after discontinuation	II-2	B	No substantial increase in risk

graphic profile of women using IUDs in the western world are women who have either just had a child, are breastfeeding or wanting to space their family, or women who have completed their family but sterilisation is not desired by either partner.

In practice, nulliparous women are not encouraged to use IUDs because with a nulliparous cervix and generally smaller uterus the IUD is more difficult to insert and rates of expulsion may be higher.<sup>12</sup>

Previously, younger unmarried women were also thought to be unsuitable for IUDs because they were not in stable monogamous relationships and therefore more at risk of sexually transmitted diseases (STDs). It was thought that this put them at increased risk of developing PID and subsequent infertility, which if they have not yet had a child may be a more difficult burden to bear. However, a recent systematic review whose findings are given in Table 2 has found that IUDs do not facilitate PID or make STDs easier to catch.

The introduction of the levonorgestrel releasing intrauterine system (IUS) Mirena, has widened the spectrum of women who would benefit from this device. At present the IUS has two major indications; contraception and the management of menorrhagia or dysfunctional uterine bleeding.<sup>13</sup> Recent studies have begun to explore the efficacy of this product in the management of other menstrual complaints such as dysmenorrhoea<sup>14</sup> and endometriosis, and in the provision of endometrial protection for women using oestrogen replacement therapy.<sup>15</sup>

There are few absolute contraindications to IUD use that are permanent. These are listed in Table 3. Temporary absolute contraindications are those that require investigation and treatment before IUD use can be commenced. They include:

- undiagnosed genital tract bleeding
- suspicion of pregnancy
- postseptic abortion
- current or suspected pelvic infection
- significant immunosuppression or malignant trophoblastic disease with uterine wall involvement.<sup>12</sup>

### Benefits of IUDs

Intrauterine devices are now the most cost effective reversible form of contraception available.<sup>16</sup> The many benefits of an IUD are highlighted in Table 4.

**Table 3. Permanent absolute contraindications to IUDs (adapted from Guillebaud 1999)<sup>12</sup>**

- Markedly distorted uterine cavity
- Known true allergy to a constituent
- Wilson’s disease (for copper devices only)
- Past attack of bacterial endocarditis or of severe pelvic infection in a woman with an anatomical lesion of the heart or after any prosthetic valve replacement

**Table 4. The benefits of using IUDs (adapted from Guillebaud 1999)<sup>12</sup>**

- Effective
- comparable to efficacy of female sterilisation
  - as a postcoital agent (emergency contraception up to five days post unprotected intercourse)
- Safe
- mortality 1:500 000
  - no known unwanted systemic effects
- Independent of intercourse
- Motivation is only required at time of insertion
- Cheap and easy to distribute
- Does not influence milk volume or composition
- Continuation rates are very high
- Reversible form of contraception

**Table 5. A comparison between the Copper T380A and Mirena (derived from Guillebaud 1999)<sup>12</sup>**

	Copper T380A IUD	Mirena IUS
Active ingredient	Copper	Levonorgestrel
Size	Slimmer (4 mm diameter)	Fatter (5 mm diameter)
Cumulative failure rate at 10 years	1.4:100 women years	0.2:100 woman years
Side effects	Increased dysmenorrhoea  Heavier periods	Initial irregular bleeding and spotting  Increased dysmenorrhoea Amenorrhoea after 6-12 months use
Indications	Contraception	Contraception  First line management of menorrhagia  Endometrial protection for concurrent use of oestrogen postmenopausally

### **Which is preferred: the Mirena, Multiload or Copper T?**

With the availability of the Mirena IUS in Australia, GPs recommending or inserting IUDs in patients need to decide which device to use, the nonhormonal IUDs or Mirena. If there are no therapeutic reasons to use Mirena eg. menorrhagia, then on the basis of cost and longevity a Copper T380A would be preferred. Indeed the Copper T380A is now the 'gold standard' among copper devices.<sup>12</sup> However, if the patient is concerned about the possible side effects of heavier bleeding and dysmenorrhoea with a nonhormonal IUD then she may prefer to use Mirena. Table 5 compares and contrasts the Copper T380A with Mirena.

Patients should be advised of potential side effects. The most important of these is the impact on bleeding patterns of Mirena. While initially the patient may experience some irregular bleeding, after six months the majority of women will experience amenorrhoea.

### **Should Mirena be preferred over other progestogenic forms of contraception?**

Currently progestogenic contraception available in Australia is limited to:

- the minipill
- Depo Provera
- Implanon.

All forms of progestogenic contraception affect bleeding patterns. While the effect on ovulation is variable in users of the minipill, both Depo Provera and Implanon inhibit ovulation. If these products are used long term there are concerns about inducing a prolonged hypo-oestrogenic state and the effect this will have on bones.<sup>17</sup> In contrast the levonorgestrel released by Mirena only acts locally with little systemic effect.<sup>18</sup> Ovulation continues despite the fact that women may become amenorrhoeic due to the thinning of the endometrium by the local release of levonorgestrel.

### **What other IUDs are available overseas or in the pipeline?**

A frameless IUD (FlexiGard, Cu-Fix or Gyne-fix) is a single monofilament polypropylene string, knotted at both ends. The thread is surrounded by

six copper bands. The knot at the top of the string is embedded 9-10 mm into the myometrium at insertion and the string dangles freely in the uterine cavity. This IUD will therefore be more suited to nulliparous women and those with smaller endometrial cavities. The FibroPlant levonorgestrel IUS has been clinically developed since 1997 and is a further development of the 'frameless' anchoring IUD concept.

#### **SUMMARY OF IMPORTANT POINTS**

- The IUD is the cheapest, most effective form of reversible contraception available.
- The risk of PID with an IUD is limited to the first 20 days after insertion.
- The availability of the levonorgestrel intrauterine releasing system (Mirena) has widened the indications for use of the IUD.
- Mirena can be considered in women requiring management of menorrhagia, dysmenorrhoea, for those requiring endometrial protection when using oestrogen replacement therapy, and possibly in women suffering from endometriosis.
- While Depo Provera and Implanon cause anovulation, Mirena has few systemic effects.
- Systems issues such as high insurance premiums are barriers to increased utilisation of IUDs by Australian women.

Conflict of interest: none declared.

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