THE OCCASIONAL

The Occasional insertion of intrauterine devices: new approaches

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INTRODUCTION

Intrauterine devices (IUDs) are a highly effective form of long-acting reversible contraception, offering a reliable, non-permanent option for birth control.[1] Recently, there has been a profusion of new IUDs and better evidence on pain control.[2] The rural generalist physician can provide IUDs as an important solution for women seeking effective contraception, both emergent and long-term.

In rural areas, women may face significant barriers to accessing consistent and effective reproductive healthcare. These barriers include geographic isolation, limited healthcare facilities, and a shortage of trained medical professionals.

Despite these challenges, the IUD remains one of the most effective forms of contraception, with efficacy rates exceeding 99%.[1,2] IUDs may be especially valuable in rural settings, as they offer long-term contraception with minimal follow-up.

The technique of IUD insertion is similar to both endometrial biopsy and hysterosalpingograms, so that any physician familiar with one is likely to accomplish the other.

INDICATIONS AND TYPES OF INTRAUTERINE DEVICES

Health Canada licences a growing list of 19 IUDs. In general, there still are only two types of IUDs:

- Copper IUD: The copper IUD is non-hormonal and works by preventing fertilisation through the spermatocidal effect of copper. It is effective for up to 10 years and is suitable for women who prefer a hormone-free method or are unable to use hormonal contraception. It is immediately effective so is also suitable for emergency contraception within 5 days of unprotected intercourse (99.9% effective) but is probably underused.[3]
- Hormonal IUD (levonorgestrel [LNS]): The hormonal IUD releases LNS, a progestin, which thickens cervical mucus, suppresses endometrial growth and prevents ovulation in some women. Recurrent spotting is common, as is acne and breast tenderness. It is particularly useful for women with heavy menstrual bleeding or dysmenorrhoea.

SELECTION OF INTRAUTERINE DEVICE

The ideal IUD is sized for the patient's uterus (to minimise expulsions), has

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no side effects, is of negligible cost and is easy and painless to insert even through a tight cervix. That IUD is not currently available, but there are several options that can come close.

Women with a transverse diameter of the uterine cavity at the fundus that is mismatched to the width of the IUD theoretically have a higher risk of expulsion or displacement. Studies show that multiparous women have larger uterine cavity widths.[4] In practice, we only have the history of parity, the bimanual exam and a measure for uterine length (sounding) to guide us in IUD selection.

The rural doctor is advised to familiarise themselves with two or three brand types that cover both smaller and larger IUDs and both copper and LNS. The author has inserted many types of IUD. His personal preference is the Kyleena or Flexi-T 300 for nullips and Mirena or Flexi-T+ 300 for parous women.

Table 1 lists the 19 IUDs licensed by Health Canada. The advantage of the Flexi-T series and Ballerine is that you do not really need to sound the uterus, avoiding that pain and that they have the thinnest inserter. No instruments at all, except the speculum, are used with the Yanae IUD which becomes thus painless for tenaculum and sounding. The innovative membrane deployment (an inflatable membrane that surrounds the IUD) and IUD placement could make even insertion more comfortable (claimed but not studied).

COSTS COVERAGE AND AVAILABILITY

Prices in Table 1 are approximate retail prices in Canadian dollars. The Non-Insured Health Benefits program provides healthcare coverage for registered First Nations and recognised Inuit for

Table 1: 18 Intrauterine devices licensed by health Canada

IUD	Type	Years	Technique	Length × width (mm)	$	Inserter diameter	Suggested patient (cm)	Notes
Mirena	LNS 52 mg	8	Mirena	32×32	450‡	4.3	Parous	50% eventual amenorhoea
Kyleena	LNS 19.5 mg	5	Mirena	30×28	420‡	3.6	Nullip	23% eventual amenorhoea
Flexi-T 300	Cu 300 mm²	5	Push	29×23	150‡	3.3	Nullip	Smallest inserter
Flexi-T+ 300	Cu 300 mm²	5	Push	32×28	150‡	3.3	Multip	
Flexi-T+ 380	Cu 380 mm²	5	Push	32×28	150‡	3.3	Multip	Difficult to fold past Cx
IUB ballerine	Cu 380 mm²	5	Ballerine	77	185	3.2	Sounds 6–9	Ball shaped
Mona Lisa 10 CuT 380A QL	Cu 380 mm²	10	Fundal	36×32	112‡	4.3	Sounds >6.5	Longest lifespan
Mona Lisa 5 NT Cu380	Cu 380 mm²	5	2-step	32×32	96‡	3.6	Sounds >6.5	
Mini NT Cu380	Cu 380 mm²	5	2-step	30×24	96‡		Sounds <7	
Mona Lisa N ST Cu300	Cu 300 mm²	3	Push	29×23	96‡		Sounds <6	Shortest lifespan
Liberté TT	Cu 380 mm²	10	Fundal	34×30	135‡	4.3	Parous or sounds >7	Longest lifespan
Short	Cu 380 mm²	5	Fundal	30×23	135‡	4.3	Nullip	
Liberté UT	Cu 380 mm²	5	2-step	35×32	125‡	3.8	Parous or sounds >7	
Short	Cu 380 mm²	5	2-step	28×32	125‡	3.8	Nullip	
Yanae	Cu 380 mm²	5	Yanae	33×31	140	NA	Parous	"Painless" only speculum needed
Mini	Cu 380 mm²	5	Yanae	30×28	140	NA	Nullip	
SMB 380 AG	Cu 380 mm²	5	2-step	33×31			Sound s >7	
Mini	Cu 380 mm²	5	2-step	30×24			Sounds <7.5	
SMB 380 A	Cu 380 mm²	10	Push	36×32			Sounds 6–9	Longest lifespan

‡Copper and hormonal IUDs covered by BC Pharmacare. IUDS: Intrauterine devices, NA: Not available, LNS: Levonorgestrel

both copper and hormonal IUDs. BC Pharmacare covers both copper and hormonal IUDs indicated by ‡. Most other provincial programs, including Manitoba Health, La Régie de l'assurance maladie de Québec and Ontario Drug Benefit, do not cover any copper IUDs but cover hormonal IUDs. The Liberte TT and UT are backordered as of 11 March 25. SMB is ordered from India.

INTRAUTERINE DEVICE INSERTION

The patient is informed of the risks, including expulsion (2%–10% - most in the 1st year), pregnancy (<1%), pelvic inflammatory disease (PID) infection (1% in first 90 days) and perforation (0.5%). Vasovagal reactions at the time of insertion are rare (2%). Discontinuation rates due to spotting and/or bleeding for both copper and LNS IUDs are particularly high in the first 6 months but may be reduced by counselling before insertion to ensure realistic patient expectations.[5]

At my clinic, we time the insertion during menses to ensure some cervical dilatation and lack of pregnancy. Otherwise, we do a urine pregnancy test unless we are absolutely sure that the patient has been celibate. For LNS, back-up contraception is needed for 7 days after insertion if not done within 7 days after menses onset.[2]

We use re-usable sterilised instruments, including scissors, tenaculum, ring forceps and sound. We sometimes use a Hegar uterine 3/4 mm dilater [Figure 1]. The procedure requires disposable gloves, gauze and antiseptic and a well-lighted speculum.



Figure 1: Intrauterine device instruments from right to left, metzenbaum scissors, single toothed tenaculum, ring forceps, malleable sound, Hegar 3/4 mm.

After consent and review of the manufacturer's specific directions, the patient is placed into lithotomy position. A bimanual examination confirms the lay of the uterus. A speculum is inserted, the cervix examined for signs of infection. If a patient has not been screened and meets indication for sexually transmitted infection (STI) screening, that can be done at this point. Proviodine is applied to the cervix with a long swab or ring forceps with gauze.

Pain relief

Each placement of the tenaculum, uterine sounding and insertion of the IUD is painful. The practitioner should be mindful of their patient's needs and have a plan in place. Treatment with an non-steroidal anti-inflammatory drug NSAID such as Naproxen 500 mg 1 h before insertion is helpful. Neither 2% lidocaine gel nor misoprostel has been found to ease IUD insertion and is best avoided. Instead consider 4 puffs of 10% lidocaine spray or 6 g of 4% xylocaine jelly applied to the cervi × 3 min before instrumentation. A four quadrant paracervical block with 10–20 mL of 1%–2% lidocaine is resource intensive but a great option in a hospital setting.[6] As in many situations, talk to the patient about what you are doing to reassure and distract them from any pain as much as possible. The level of pain on insertion depends on the individual; some feel very little pain and for others it can be quite painful.

After topical or local anaesthetic, the tenaculum is attached to the cervix while instructing the patient to cough. The uterine sound is adjusted to the perceived lay of the uterus. While applying gentle traction on the tenaculum, to straighten the uterus, sound the uterus. Set the flange on the IUD parallel with the arms of the IUD at the marking for the sounded depth.

A malleable uterine sound typically has a tip diameter of 3 mm. If you cannot sound the uterus, you are not going to have success with IUD insertion. In that case the IUD package is not opened, and the case is deferred to the operating room and or a consultant, which is the author's preference. Dilatation increases the risk of perforation or forming a false passage.

Dilatation can be done as an outpatient in selected cases if anaesthesia is good and the operator familiar with the procedure. You will need to serially dilate with gentle continual pressure.

Further steps are guided by the manufacturers' instructions which should be reviewed and followed. There often is an insertion technique video available on the internet that can be reviewed.[7-10] One-on-one training on the Yanae device is available by teleconference from 49 Care Ltd.

In general, there are several styles of insertion.

M ("Mirena" and "Kyleena")

The flange is set to the sounded length. The IUD is folded into the insertion tube by moving the slider all the way forwards. The tube is inserted to the fundus 1–2 cm short of the sounded length [Figure 2].

The slider is advanced to allow for the arms to release [Figure 3].

Then the insertion device is advanced to the fundus. The slider is slid all the way back and the insertion device removed [Figure 4].

Push ("Flexi-T" "SMB 380A" and "Mona Lisa N")

The IUD is inserted in the T formation by pushing up to the fundus [Figure 5]. Sounding and tenaculum steps can be skipped thus reducing discomfort. The arms are folded by the cervix. Folding is easy for most patients, but it depends on the arms being flexible and the external cervix os accommodating the bending. It is harder when the arms are stiff copper-covered as in Flexi-T+ 380 and SMB 380A or the external cervical os is stenotic [Figure 6].

B ("Ballerine")

Similar to the Flexi-T, sounding and tenaculum steps are optional thus reducing discomfort. The IUD comes straightened in the insertion tube. The tube is inserted to the fundus and then withdrawn 3 mm. Counter intuitively you then push the IUD out of the insertion tube and allow it to coil into a ball within the uterine cavity [Figure 7].

2-step ("Nova T" and "Mona Lisa 5")

This is a traditional technique where the uterus is first sounded. The IUD is then folded and retracted into the insertion tube. The tube is inserted 1–2 cm short of the sounded length [Figure 8]. A pusher is inserted up to its mark to release the

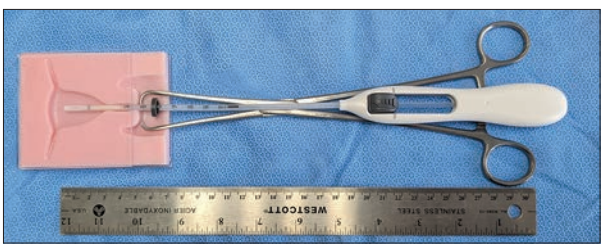


Figure 2: Kyleena placed 1 cm short of the sounded length.

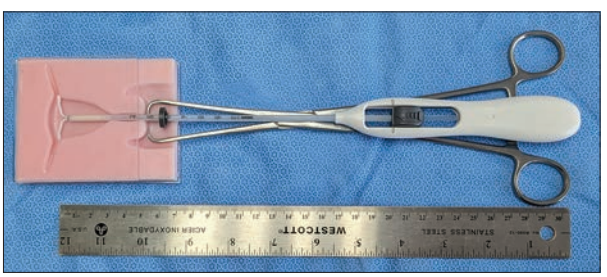


Figure 3: Kyleena with arms released.

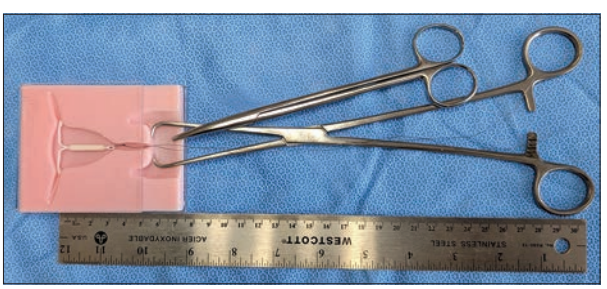


Figure 4: Kyleena with strings about to be cut.

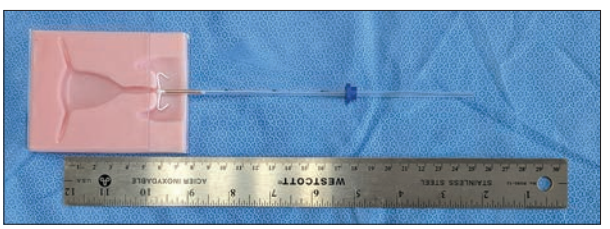


Figure 5: Flexi T 300 in position about to be pushed through cervix.

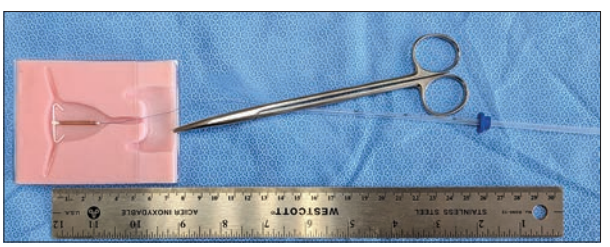


Figure 6: Flexi T 300 string about to be cut.

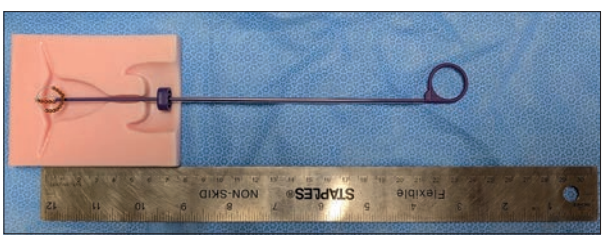


Figure 7: IUB Ballerine.

arms and only then the insertion tube is moved up to the fundus [Figure 9]. The insertion tube is then withdrawn over a stationary pusher. Then the pusher is removed followed by the tube.

Y ("Yanae" type) [Figure 10]

Sounding and tenaculum steps can be skipped thus reducing discomfort.

The IUD is first folded into the introducer and the membrane pressurised with saline. The membrane is advanced to the cervix and then deployed through the cervix to the fundus with the pusher tube. If the uterus is shorter than 7 cm you will feel resistance as it reaches the fundus. In such a case hold the pusher tube in position and slide the hub back to it [Figures 11 and 12].

If the uterus is longer, then advance the hub and pusher together until you feel resistance at the fundus. Ensure that the displacer tube is against the back of the IUD. To release the IUD, hold the displacer tube in position as you slide the hub back over the displacer until the hub, pusher and displacer tubes are in contact. At this point you can remove the insertion device, and the strings are cut to 2 cm length [Figure 13].

Fundal release ("Mona Lisa 10" and "Liberte TT" type)

This is a variation on the second step. The IUD is first folded into the insertion tube. The tube is inserted to the fundus at the sounded length [Figure 14]. The tube is withdrawn over the plunger to the stop to allow for the arms and the IUD to release [Figure 15]. Then, the insertion device is removed.

Common

After insertion, the strings are cut to about a 2-cm length. Observe the patient for syncope and let

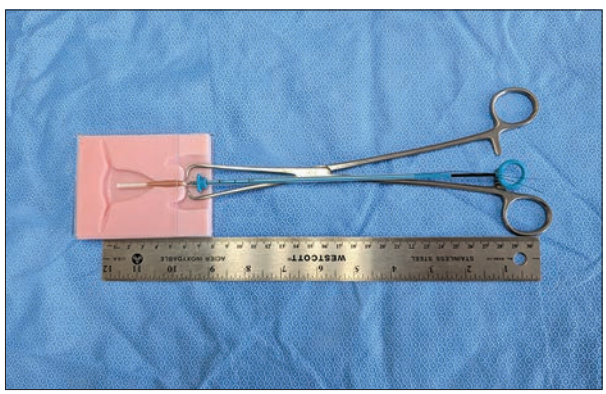


Figure 8: Liberté UT380 with arms folded short of sounded length.

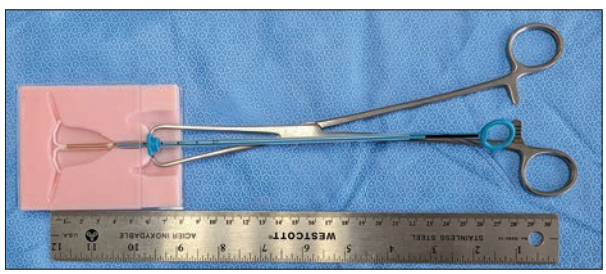


Figure 9: Liberté UT380 with released arms at fundus.



Figure 10: Yanae about to be folded.

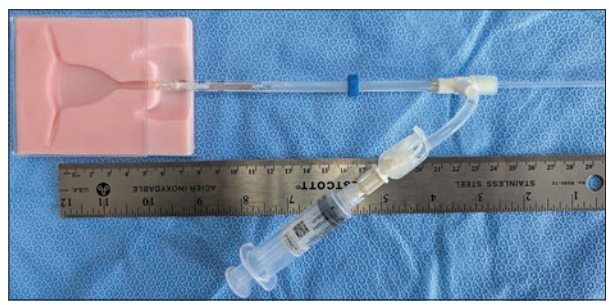


Figure 11: Yanae at the cervix about to deploy membrane.

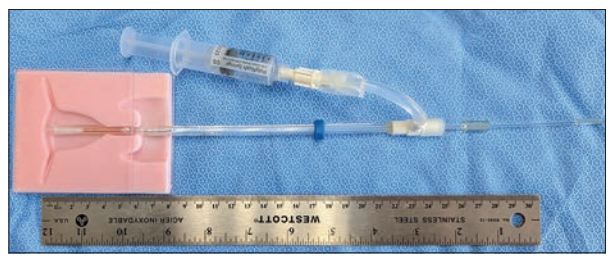


Figure 12: Yanae membrane is at fundus. With a short uterus the pusher tube is not at the hub.

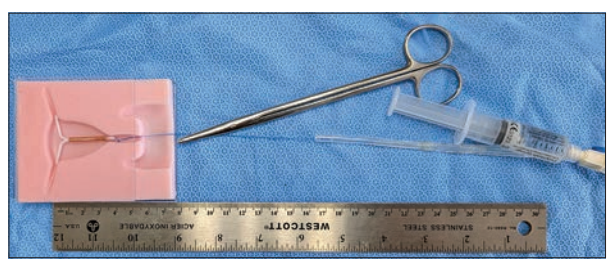


Figure 13: Yanae strings about to be cut.

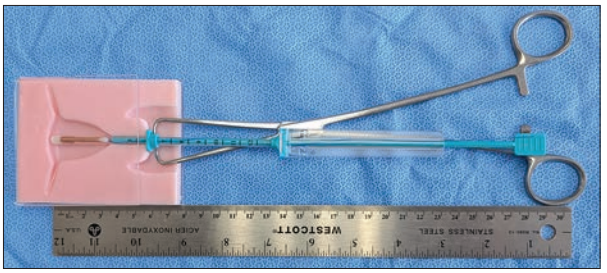


Figure 14: Liberté TT 380 at fundus.

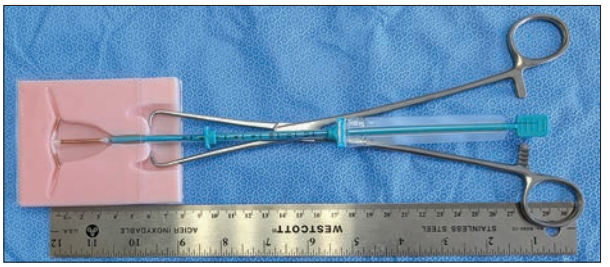


Figure 15: Liberté TT 380 at fundus.

them recover. Provide the patient with a wallet card marking the brand and the replacement date.

Follow-up care

Post-insertion follow-up is essential for monitoring the complications such as infection, expulsion or perforation.

The expulsion rate may be slightly higher in the first few months, especially in younger women or those who have not had children, or in the post-partum period. A point-of-care ultrasound is helpful in determining if the IUD is in place. An X-ray will show the IUD but will not be as good at determining where it's situated.

Although rare, uterine perforation can occur during insertion but may only be diagnosed in workup of prolonged and abdominal pain. In rural settings with limited access to specialised surgical care, perforation may require referral to urban centres for treatment.

The risk of PID may increase in the first 20 days after insertion, particularly in women with undiagnosed STIs. Conventionally, these infections were treated with antibiotics and the IUD removed; however, current practice is to treat with the IUD in place with close monitoring if the patient is not septic and is improving on treatment.[2]

If pregnancy occurs, then early confirmation of location by ultrasound of both the pregnancy and the IUD is necessary as ectopics are a particular concern.

CONCLUSION

In rural healthcare settings, the insertion of IUDs offers a promising solution for long-acting contraception. Despite challenges such as limited resources, geographic isolation and cultural barriers, with appropriate training, rural healthcare providers can effectively offer IUD insertion to their communities. By addressing patient education, ensuring informed consent and providing adequate follow-up care, providers can help ensure the success of IUD use in rural areas, improving access to reliable contraception and contributing to better reproductive health outcomes for women in underserved regions.

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REFERENCES

1. Bradley SE, Polis CB, Micks EA, Steiner MJ. Effectiveness, safety, and comparative side effects. In: Cason PC, Edelman A, Kowal D, Marrazzo JM, Nelson AL, Pollicar MS, *et al.*, editors. Contraceptive Technology. 22nd ed. Burlington, MA: Jones-Bartlett Learning; 2023.
2. Curtis KM, Nguyen AT, Tepper NK, Zapata LB, Snyder EM, Hatfield-Timajchy K, *et al.* U.S. selected practice recommendations for contraceptive use, 2024. MMWR Recomm Rep 2024;73:1-77.
3. Goldstuck ND, Cheung TS. The efficacy of intrauterine devices for emergency contraception and beyond: A systematic review update. Int J Womens Health 2019;11:471-9.
4. Kurz KH. Cavimeter uterine measurements and IUD clinical correlation. In: Zatuchni GI, Goldsmith A, Sciarra JJ, editors. Intrauterine Contraception: Advances and Future Prospects. Philadelphia: Harper and Row; 1984. p. 142-62.
5. Myo MG, Nguyen BT. Intrauterine device complications and their management. Curr Obstet Gynecol Rep 2023;12:88-95.
6. Lopez LM, Bernholc A, Zeng Y, Allen RH, Bartz D, O'Brien PA, *et al.* Interventions for pain with intrauterine device insertion. Cochrane Database Syst Rev 2015;2015:CD007373.
7. Bayer. Mirena IUD Insertion and Removal; 2025 IUD. Available from: https://www.mirenahcp.com/insertion-and-removal. [Last accessed on 2025 May 06].
8. Prosan International BV. Flexi T; 2021. Available from: https://www.youtube.com/watch?v=6_eBh_pOiP8. [Last accessed on 2025 May 06].
9. EurimPharm Arzneimittel GmbH. Mona Lisa NT Cu380 / 380 Mini Insertion Video; 2017. Available from: https://www.youtube.com/watch?v=115PdkY9gYY. [Last accessed on 2025 May 06].
10. Care LTD. Preparation and Insertion of Yanae; 2024. Available from: https://yanae.ca/healthcare-professionals. [Last accessed on 2025 May 06].