Update on Intrauterine Contraception

NPWH
NURSE PRACTITIONERS IN WOMEN'S HEALTH
Caring for Women

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Newsletter 2 of 2

Incorporating Intrauterine Contraception Into Your Practice

Worldwide, intrauterine contraception is the most commonly used method of reversible birth control, relied upon by 44.9% of women in China, 24.1% in Norway, 21.9% in France, and 11.6% in Mexico.[1]

In the United States, increased interest in this contraceptive option has coincided with recommendations and reports in the medical literature, medical eligibility criteria developed by the Centers for Disease Control and Prevention,[2] and changes in product labeling. These developments, along with documentation of patient satisfaction with these devices, have helped to highlight the appropriateness of intrauterine contraception for most women, including adolescents and nulliparous women.[2-5] Representative medical eligibility criteria are shown in **Table 1**.[2]

Medical eligibility guidelines and recommendations from the American College of Obstetricians and Gynecologists[4,5] are

CE INFORMATION

This 2-part continuing education (CE) series of newsletters has been designed to meet the educational needs of nurse practitioners (NPs) involved in women's health.

Newsletter 1:
Can We Do Better? Overcoming Patient/Provider Barriers to the Use of Intrauterine Contraception
CE APPROVAL PERIOD:
January 1, 2014 through December 31, 2014

Newsletter 2:
Incorporating Intrauterine Contraception Into Your Practice
CE APPROVAL PERIOD:
February 1, 2014 through January 31, 2015

ESTIMATED TIME TO COMPLETE THIS ACTIVITY: 0.5 HOUR

NEEDS ASSESSMENT
This CE newsletter presents practical strategies to meet the needs of nurse practitioners (NPs) and other clinicians who manage the contraceptive needs of reproductive-age patients. It is based on the proceedings of a luncheon symposium developed by the National Association of Nurse Practitioners in Women's Health (NPWH) Education Committee and presented as part of the NPWH 16th Annual Premier Women's Healthcare Conference in San Diego, California. The content focuses on the need for top-tier contraception and the ongoing problem of unintended pregnancies, and how best to address patient misconceptions and concerns through effective counseling. The available intrauterine devices are reviewed, and potential candidates for each form of intrauterine contraception identified, using US medical eligibility criteria. Placement techniques are presented to enhance success and avoid complications. The actual proceedings of the live event may be accessed at https://npwh.globalclassroom.us/portal/.

EDUCATIONAL OBJECTIVES
At the conclusion of this activity, clinicians should be better able to:
- Describe each of the 3 available intrauterine devices and their indications
- Counsel women on potential side effects
- Summarize placement techniques for each and steps to use to minimize risks of complications with placement

ACCREDITATION STATEMENT
This activity has been evaluated and approved by the Continuing Education Approval Program of the National Association of Nurse Practitioners in Women's Health (NPWH), and each newsletter has been approved for 0.5 contact hour of CE credit, including 0.25 contact hour of pharmacology content.

FACULTY DISCLOSURES
NPWH policy requires all faculty to disclose any affiliation or relationship with a commercial interest that may cause a potential, real, or apparent conflict of interest with the content of a CE program. NPWH does not imply that the affiliation or relationship will affect the content of the CE program. Disclosure provides participants with information that may be important to their evaluation of an activity. Faculty are also asked to identify any unlabeled/unapproved uses of drugs or devices made in their presentation. The faculty reports the following:

Dr Nelson reports that she has received honoraria for consultation from Actavis, Agile, Bayer, Merck, and Teva. She has received honoraria for participation in speakers bureaus from Bayer, Merck, Teva, and Watson. Her clinic has received research grants from Bayer, Merck, Pfizer, and Teva.

Ms Rawlins is a consultant to Merck and Mission.

THERAPEUTICS DISCLAIMER
Participating faculty members determine the editorial content of CE activities; this content does not necessarily represent the views of NPWH or Bayer HealthCare Pharmaceuticals. This content has undergone a blinded peer review process for validation of clinical content. Although every effort has been made to ensure that the information is accurate, clinicians are responsible for evaluating this information in relation to generally accepted standards in their own communities and integrating the information in this activity with that of established recommendations of other authorities, national guidelines, FDA-approved package inserts, and individual patient characteristics.

SUCCESSFUL COMPLETION OF THE ACTIVITY
Successful completion of this activity requires participants to: (a) Read the learning objectives, disclosures, and disclaimers; (b) Study the material in the learning activity; (c) During the approval period (now through December 31, 2014): 1. Log on to the NPWH Online Continuing Education Center (https://npwh.globalclassroom.us/portal/); 2. Click on the CE Education link; 3. Click on the link to the intrauterine e-newsletters; 4. Complete the posttest and evaluation online; 5. Earn a score of 70% or better on the posttest to receive CE credit; 6. Print out the CE certificate if successfully completed.

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Table 1 : US Medical Eligibility Criteria, 2012[2]

User Characteristics	Cu-IUD		LNG IUS	
	Initiation	Continuation	Initiation	Continuation
Nulliparous	2		2	
Postabortal 1st trimester	1		1	
Multiple risk factors for MI	1		2	
Hypertension	1		2	
Migraine with aura	1		2	3
Past PID – subsequent IUP	1	1	1	1
Past PID – no subsequent IUP	2	2	2	2
Increased risk of STI	2/3	2	2/3	2
HIV	2	2	2	2

1 = a condition for which there is no restriction for the use of the contraceptive method.
2 = a condition where the advantages of using the method generally outweigh the theoretical or proven risks.
3 = a condition where the theoretical or proven risks usually outweigh the advantages of using the method.

Cu-IUD, copper intrauterine device; HIV, human immunodeficiency virus; IUP, intrauterine pregnancy; LNG IUS, levonorgestrel-releasing intrauterine system; MI, myocardial infarction; PID, pelvic inflammatory disease; STI, sexually transmitted infection.

of great importance because, although many forms of contraception offer excellent efficacy with correct and consistent use, the majority is associated with significant risks of unintended pregnancy (**Table 2**).[5]

Available intrauterine contraceptive options

There are currently 3 options for intrauterine contraception available in the United States: the Copper T380A IUD, the levonorgestrel (LNG) IUS20, and the recently approved LNG IUS13.5.

The Copper T380A

The Copper T, the only available nonhormonal IUD, has been used in the United States since 1988. It is approved by the FDA for up to 10 years' use[6]; it may be effective for a longer period of time.[7] It is also an important off label option for emergency contraception[8] and can be used for up to 5 days after unprotected intercourse. It achieves its contraceptive effects in several ways. Copper ions reduce sperm transport and motility. The Copper T also interferes with the sperm's ability to penetrate the egg. Used as emergency contraception, it is likely that the placement process itself disrupts implantation and provides the postfertilization effect.[9]

In a study of 1963 women who received the copper intrauterine device (IUD) within 120 hours of unprotected intercourse, the following results were noted:

- No pregnancies occurred
- No pelvic inflammatory disease (PID) was reported
- 94.3% of parous women continued at 12 months
- 88.2% of nulliparous women continued for 1 year[10]

LNG IUS20

The LNG IUS20 was approved by the FDA in 2000. It contains a reservoir of LNG, 52 mg, and initially releases 20 mcg/day of LNG to provide efficacy for 5 years. It has indications for contraception and for the management of heavy menstrual bleeding in women who choose to use an IUD for contraception.[11] It achieves its contraceptive effects by thickening the cervical mucus, providing a weak foreign-body reaction, and slightly inhibiting ovulation.

It also suppresses the endometrium, which results in rapid and significant reduction in bleeding. Thus, in the absence of serious pelvic pathologies, the LNG IUS may be used as a first-line treatment for heavy or prolonged bleeding, with hysterectomy reserved for those whose bleeding remains problematic.

LNG IUS13.5

The LNG IUS13.5 is named for its reservoir of LNG, 13.5 mg. A silver ring, located at the top of the vertical stem, enables clinicians to distinguish this device from the longer-acting LNG IUS20. Neither this device nor its packaging contains latex.[12] This device is smaller than the LNG IUS20. It measures 28 mm by 30 mm. Placement tubing is 3.8 mm in diameter. It is indicated for use in nulliparous women and for placement immediately following first trimester abortion, with failure rates of less than 1%. The cumulative 3-year pregnancy rate is less than 1%. With its low levels of hormones, this option may be appropriate for those who are sensitive to LNG. This option typically induces amenorrhea in only 12% of users after 3 years.

Considerations to guide patient selection of intrauterine contraception

Both hormonal and nonhormonal IUDs are comparable in many ways. However, differences may guide device selection for specific patients. Key factors that may influence decision making are:

Future childbearing plans

Available forms of intrauterine contraception are approved for between 3 and 10 years' use.[6,11,12] Both the copper T and hormonal IUDs offer rapid return to fertility.[13,14]

Attitudes and preferences regarding menstruation

Choices may be influenced by patient preferences: does the patient desire regular periods? If so, the copper IUD may be a better choice.

Is the patient bothered by the duration or amount of blood loss? If suppression of menstruation is a goal, the 20 mcg hormonal IUD may represent the most appropriate option.[11]

Hormonal or nonhormonal agent

In general, this represents a personal preference, although there are absolute contraindications for the LNG IUSs for women with a history of breast cancer within the past 5 years. Use of the copper IUD is contraindicated for women with Wilson's disease, a disorder of copper storage.[2]

Need for emergency contraception

The copper IUD is very effective as an emergency contraception for up to 5 days after unprotected intercourse regardless of the woman's weight. Neither LNG IUS has been tested for emergency contraception; the hormonal IUSs achieve their contraceptive effects through their action on cervical mucus, but do not achieve complete efficacy immediately.

Table 2: Women (%) Experiencing Unintended Pregnancy During First Year of Typical Use[5]

Contraceptive Method	Unintended Pregnancy
No method	85%
Male condom	15%
OC, patch, or ring	8%
Copper IUD	0.8%
Hormonal IUD	0.1%

Absence of contraindications

Contraindications to IUD use in general include:

- Pregnancy
- Known or suspected cervical or uterine carcinoma
- Cervical or uterine infection
- Uterine abnormalities in terms of size or shape that preclude use
- Wilson's disease (copper IUD only)
- Breast cancer within 5 years (LNG IUS only)[2]

Desire for benefits other than contraception

Data have shown the LNG IUS20 to be of potential value for the management of conditions that include:

- Management of heavy menstrual bleeding. The LNG IUS20 is FDA-approved for the management of heavy menstrual bleeding. In a pivotal trial, 85% of IUD users meet both the required standards for bleeding reduction compared with 22% of medroxyprogesterone acetate users.[15] A meta-analysis has compared the use of the LNG IUS and endometrial ablation in the management of heavy menstrual bleeding. Both treatments demonstrated similar treatment failures (21.2% versus 17.9%) and resulted in similar improvements in quality of life. The LNG IUS required less analgesia/anesthesia.[16] Most important, ablation requires use of an additional method of contraception because of serious risks if the woman should become pregnant following ablation.[15] In a randomized trial of hysterectomy versus LNG IUS20 for heavy bleeding, quality of life measures were similar between treatments.

Costs associated with LNG IUS were significantly lower than those associated with hysterectomy.[17]

- The LNG IUS has also demonstrated efficacy for other conditions including:
  - Treatment of endometrial hyperplasia, with appropriate follow-up to prevent disease progression[18]
  - Reduction of endometrial cancer risk in women with polycystic ovary syndrome and/or obesity[19]
  - Improvement in pain for women with endometriosis[19-21]
  - Treatment for dysmenorrhea caused by endometriosis[21]
  - Endometrial protection from tamoxifen-induced changes[22]
  - A source of progestin in hormone-replacement therapy.[23]
  - Treatment of heavy and prolonged bleeding due to leiomyoma and adenomyosis
  - Treatment of heavy menstrual bleeding in women with bleeding disorders.[18,24]

Placement timing: Many options

Placement of the device can be made at any time during the menstrual cycle. Data show that either hormonal or copper devices can be placed safely at times other than menses, but it is important that pregnancy first be ruled out. Placement can coincide with other routine office visits, such as cervical cancer screening. In the presence of high-grade lesions, it is recommended that placement be delayed until cervical cancer is ruled out. Screening for sexually transmitted diseases can also be performed at the time of insertion, with treatment initiated after test results are obtained.[2,18]

A thorough history, a bimanual examination, and cervical inspection are all that is needed prior to IUD placement.[25]

Placement timing and the need for back-up contraception

Depending on placement timing and device selection, back-up contraception may be required. The copper IUD is effective immediately after placement, and no back-up contraception is necessary. The LNG IUS achieves its contraceptive effect through its action on cervical mucus, and it does not achieve complete efficacy immediately. If the LNG IUS is placed more the 7 days after the start of the menses, back-up protection is needed for 7 days.[25] Midcycle placement using the LNG IUS was investigated in a small study. Although the quality of mucus changed rapidly, sperm penetration was possible for up to 5 days after placement of the LNG IUS.[26,27]

Placement timing and continuation

For the copper IUD, a review of 8 studies revealed that the timing of insertion had little impact on continuation rates, removal, immediate or long-term expulsion, pregnancy, or bleeding at time of placement. No benefits were observed for placement during menses.[28] Women may be more uncomfortable with placement during menses.

Placement with cesarean section, postpartum, or after abortion

Placement may be performed during a cesarean section, immediately postpartum, or post-abortion.[29-31] As part of the cesarean section procedure, an extra vicryl suture should be tied to the tailstrings, and the IUD and its tubing (without a stabilizing rod) introduced through the uterine incision after removal of the placenta. The IUD is guided to the top of the fundus. Then the tubing is threaded through the internal os and into the vagina. At the end of the procedure, the tubing is removed vaginally, bringing the tailstrings into the vagina.[32] Expulsion rates associated with cesarean section are lower than those following vaginal delivery. It should be noted that suturing the IUD to the uterine wall does not reduce the risk of expulsion, and placement with cervical dilation <2 cm lowers expulsion risk.[29]

Placement also may be made within 10 minutes of placental delivery. Rates of expulsion immediately after delivery are lower than those associated with later postpartum placement.[29,30] Importantly, women who elect immediate postpartum placement are much more likely to actually have IUD placement than are women who are advised to wait for uterine involution to occur.

Placement at 6 to 8 weeks postpartum in lactating women resulted in no pregnancies and no negative effects on infant growth and development. At 1 year, continuation was 89% for the LNG IUS and 91% for the copper IUD.[32]

Placement after spontaneous or induced abortion is practical and safe, especially in the first trimester. Early in the first trimester, the IUD is associated with an expulsion rate similar to interval insertion, with similar rates of safety and continuation.[33,34]

Myths and misperceptions

Despite a long history of safety and efficacy, misperceptions about intrauterine contraception remain widespread. These include:

Pelvic inflammatory disease. No association between currently available IUDs and PID after the first 20 days has been reported in the literature.[35]

Ectopic pregnancy. Because pregnancy occurring with IUD use is extremely rare, ectopic pregnancy risk is reduced in IUD

users. However, if pregnancy does occur, it is more likely to be ectopic than it would if the patient had used no birth control.

Practical issues for clinicians

Prior to insertion

Ensure that the patient's medical history indicates no contraindications to the use of intrauterine contraception. Review the procedure thoroughly with the patient, address her concerns, answer any questions, and obtain informed consent.

Examine the size, position, and mobility of the uterus. Ensure that no vaginal or cervical discharges are present. Evaluate fibroids or cysts that may make placement challenging or that contraindicate IUD placement.

Pain management

Patients may be concerned about placement-associated pain. Agents evaluated to date—NSAIDs, misoprostol,[36] nitroprusside,[37] or intrauterine infusion of 2% lidocaine[38]—have shown no improvement in pain scores. Misoprostol has been associated with an increased risk of complications.[36]

During the short placement procedure, pain may be managed by distracting the patient using strategies that include calmly explaining the procedure and letting her know what she may feel at specific stages (ie, "I'm going to do X. Some women feel a cramp…") and engaging the patient in conversation.

IUD placement

Detailed placement steps for women with normal and challenging anatomy are discussed in other installments in this series:

- *Update on Intrauterine Contraception*, a supplement to *Women's HealthCare*, is available for CE credit at http://npwomenshealthcare.com/update-on-intrauterine-contraception/
- *Can We Do Better? Overcoming Patient/Provider Barriers to the Use of Intrauterine Contraception,* the first part of this 2-part CE newsletter series, is available at https://npwh.globalclassroom.us/portal/
- *Update on Intrauterine Contraception*, a 1-hour CE webinar, is available at https://npwh.globalclassroom.us/portal/

In general, however, the available IUDs feature 2 distinct characteristics that dictate placement techniques: the arms of the LNG IUS devices fold upward and those of the Copper T fold downward. This means that the former are initially introduced at a distance of 2 cm below the fundus to allow sufficient space for the IUD arms to expand upward and outward. It is advisable to wait for approximately 20 seconds to ensure that the arms have opened completely. At this point, the device is advanced to the fundus. The copper IUD is advanced directly to the fundus and the arms are opened there.

Improving postinsertion bleeding patterns

After IUD insertion, both tranexamic acid and mefenamic acid have been shown to control blood loss.[39] Other NSAIDs also may be helpful: naproxen has been evaluated in comparison with the estradiol patch and has demonstrated efficacy—more strongly than did the patch—in reducing menstrual blood loss.[40]

Malpositioned IUDs

Overall, it is not necessary to remove an IUD unless it extends into the cervical canal or is in the lower uterine cavity and the woman is cramping. IUDs that have perforated also need removal. For detailed information, see *Update on Intrauterine Contraception*, a supplement to *Women's HealthCare*, available for CE credit at http://npwomenshealthcare.com/update-on-intrauterine-contraception/. It should be noted that in one study, women who had IUDs removed had higher pregnancy rates than did women whose malpositioned IUDs were left in place. It should, however, be assumed that missing strings indicate expulsion, until location is established. For more detailed information, listen to the archived webinar, *Update on Intrauterine Contraception,* available at https://npwh.globalclassroom.us/portal/

Conclusion

Intrauterine devices represent an important option to achieve patient goals for avoiding unintended pregnancy. Despite a long history of safety and efficacy, the use of intrauterine contraception remains low. Poor adherence to daily contraception regimens continues to result in unacceptably high rates of unintended pregnancy. As clinicians, we need to incorporate intrauterine contraception into our practices, discuss these options with eligible patients, and keep in mind that 1) a large proportion of our patients will be unlikely to adhere to short-term options for contraception, and 2) failure of short-term contraception becomes increasingly likely over time. Because intrauterine contraception allows patients to make a one-time decision that conforms to their contraceptive objectives, it presents an excellent option for the majority of patients. ■

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