The LNG IUS contraceptive was developed in the 1970s by Population Council and Bayer Schering Pharma Oy, combining the features of oral contraceptives and IUD.

- Product consists of a T-shaped plastic frame and white cylinder shaped hormone reservoir around the vertical arm of the frame, with two nylon threads for removal.

- The system contains 52 mg of the hormone levonorgestrel and releases 20µg/24h in the uterus for up to five years of protection.

Source: Mirena prescribing information March 22, 2011
The LNG IUS is made of flexible plastic

The LNG IUS contains a progestin hormone called levonorgestrel which has been used in birth control pills since the 1970s

The safety of levonorgestrel has been proven by clinical use also in sub-dermal implants and intrauterine systems since decades

Source: Mirena prescribing information March 22, 2011; Sivin 2003
LNG IUS MECHANISMS OF ACTION

- Thickens cervical mucus
- Inhibits sperm function in uterus
- Reduces monthly growth of the lining of the uterus making periods lighter and shorter; there is no evidence that LNG IUS has any impact on implantation
- LNG IUS can also lessen menstrual blood loss in women who have heavy menstrual flow

Source: Mirena prescribing information March 22, 2011
LNG IUS ENDOMETRIAL EFFECTS

Normal menstrual cycle

Menstrual cycle in a woman with LNG IUS

Days of the menstrual cycle

Ovulation

Menstruation

Ovulation

Days of the menstrual cycle
CHARACTERISTICS OF LNG IUS

- Effective rate of unplanned pregnancy ~0.2% at 1 year and less than 1% at 5 years
- High continuation rate: up to 85% at one year
- Significantly reduces menstrual blood loss
- No impact on return to fertility after removal (80% at 1 year)

Sources: Mirena prescribing information March 22, 2011; Mirena product monograph 8th edition, 2009
EFFECTIVENESS OF CONTRACEPTIVE METHODS

- More effective
  - IUS
  - IUD
  - Implant
  - Sterilization

- Less effective
  - Injection
  - Pill
  - Ring
  - Patch
  - Condom
  - Diaphragm
  - Cervical cap
  - Spermicide
  - Withdrawal

Who might use LNG IUS?

A woman might choose LNG IUS if she:

• Wants contraception that provides a low chance of getting pregnant
• Wants contraception that is reversible
• Wants a contraceptive method that does not require taking it daily
• Wants treatment for idiopathic heavy periods with no underlying pathology
• Prevention of endometrial hyperplasia during oestrogen replacement therapy
Who should not use LNG IUS?

A woman should not use LNG IUS if she:

- Has an untreated pelvic infection now
- Has had a serious pelvic infection in the past 3 months after a pregnancy
- Postpartum endometritis
- Has or is suspected to have cancer of the uterus or cervix
- Has unexplained bleeding from the vagina
- Has or has hormone dependent tumours including breast cancer
- Has a condition of the uterus that changes the shape of the uterine cavity, such as large fibroid tumours
- Acute liver disease or liver tumour
ALTERNATIVE TO STERILIZATION

• Where sterilization services are not available or not acceptable, IUS is as effective as sterilization (8 vs. 13 failures per 1000 procedures at 5 years)

• Reversibility of LNG IUS reduces risk of regret

Source: Sivin 2007; Mansour 2007; Inki 2007
TREATMENT FOR HEAVY MENSTRUAL BLEEDING

• Use of LNG IUS makes periods lighter, shorter and less painful (and may include dysmenorrhea)

• Over 12 months, blood loss reduced by 71-95% in women with menorrhagia

• Clinical improvement in associated anemia: Hemoglobin levels rise 1.8g/L in one year of use with LNG IUS, compared to a decrease of 1.2g/L with Copper-T.

• Irregular bleeding or spotting common in first 3-6 months; 20% with amenorrhea at 12 months. Sometimes the amenorrhea rate can be higher than 20% e.g. up to 50% at 12 and 24 months of use

Source: Luukkainen 1987; Sitruk-Ware 2007; Hidalgo et al; 2002
Change in hemoglobin during 5 years of use

**Levonorgestrel intrauterine system**

**Cu IUD**

- Years 0 to 5
- Hemoglobin in g/l
SUBSTITUTE FOR WOMEN AWAITING HYSTERECTOMY

- LNG IUS is a good therapy for heavy menstrual bleeding among women awaiting a hysterectomy

Percent operations canceled at 6 months

Source: Lahteenmaki 1998
COMMONLY ASKED QUESTIONS FROM WOMEN ABOUT THE LNG IUS
What if I need contraception for more than 5 years?

- LNG IUS must be removed after 5 years.
- Your healthcare provider can insert a new LNG IUS during the same office visit if you choose to continue using LNG IUS.

Source: Heikinheimo, 2010
What if I change my mind about birth control and want to become pregnant in less than 5 years?

• Your healthcare provider can remove LNG IUS at any time.
• You may become pregnant as soon as LNG IUS is removed.
• About 8 out of 10 women who want to become pregnant will become pregnant some time in the first year after removal. This is the regular pregnancy rate among women who do not use any contraceptive method.

Source: Luukkainen 1987
Will my menstrual periods change with LNG IUS?

- LNG IUS does affect your menstrual cycles. It can change your periods so that you spotting (a small amount of blood loss), shorter or longer periods, lighter or heavier bleeding, or no bleeding at all.
- Many women have frequent spotting or light bleeding in addition to their periods for the first 3-6 months after they have LNG IUS inserted.
- Overall, you are likely to have a gradual reduction in the number of bleeding days and in the amount of blood lost each month. Some women eventually find that periods stop altogether.
- When the system is removed, periods return to normal.

Source: Rönnerdag 1999
Can the LNG IUS be used during breastfeeding?

• Yes. LNG IUS can be used during breastfeeding because it is demonstrated that its use does not affect the growth and development of the child.

• The LNG IUS should be inserted at 6 to 8 weeks after delivery.

• Additional benefits of the LNG IUS during the post-partum period include the potential minimization of menstrual disturbances during the first months of use.

Source: CDC 2010
Can I use tampons with LNG-IUS?

- Yes. LNG IUS is placed inside the uterus, not in the vagina, therefore should not interfere with use of tampons
- However, you should change tampons with care so as not to pull the threads of the LNG IUS
Will LNG IUS interfere with sexual intercourse?

- LNG IUS should not interfere with sexual intercourse
- LNG IUS is placed inside the uterus, not in the vagina
- Sometimes, male partners may feel the threads in the vagina
Can LNG IUS protect me from HIV or STIs (sexually transmitted infections)?

- No. LNG IUS does not protect against HIV or STIs.* If you or your partner might be at risk of getting an STI while using LNG IUS, use a condom.

*no hormonal method protects against HIV or STIs
What are the most common side-effects of the LNG IUS?

10+ in every 100 women are likely to experience the following:
- Headache
- Abdominal/ pelvic pain
- Bleeding changes
- Vulvovaginitis (inflammation of the external genital organs or vagina)
- Genital discharge

1 to 10 in every 100 women are likely to experience the following:
- Depression
- Migraine
- Nausea
- Acne
- Hirsutism (excessive body hair)
- Back pain

These side effects are common among OC Pill users as well.

Source: Luukkainen 1995
Can the LNG IUS cause an ectopic pregnancy?

- It is very rare to become pregnant while using LNG IUS.
- However, if you become pregnant while using LNG IUS, the risk having an ectopic (extra-uterine) pregnancy is relatively increased.
- About 1 in a 1000 women correctly using LNG IUS have an ectopic pregnancy per year. This rate is lower than that among women not using any contraception (about 3 to 5 in a 1000 women per year).
- Woman who have already had an extra-uterine pregnancy, pelvic surgery or pelvic infection carry a higher risk of experiencing an ectopic pregnancy.

Source: Luukkainen 1995
What are the symptoms of an ectopic pregnancy?

• An extrauterine pregnancy is a serious condition calling for immediate medical attention.

• The following symptoms may signify an ectopic pregnancy and you should see your doctor immediately:
  • Your menstrual periods have ceased and then you start having persistent bleeding or pain
  • You have pain in your lower abdomen
  • You have normal signs of pregnancy, experience bleeding and dizziness
Imaging of the LNG IUS

Transvaginal ultrasound examination

A uterus with Copper IUD *in situ*  
A uterus with LNG IUS *in situ*
Imaging of the LNG IUS

X-ray image of the pelvis with LNG IUS *in situ*
Why training is an important tool in intrauterine contraception?

To be sure that the professionals be competent in IUC insertions:

- Because professionals who inserted few IUDs/LNG IUS presented major probability of uterine perforation (1.3/1000)

- Breast feeding and insertion up to 36/40 post partum ar risk factors for perforation

1) Training in the model: to be familiar with the instruments and the technique of insertion

2) LNG IUS insertion is different from copper IUD and the professional must be confident with the model before insertions to women
Clinical training requirements

- It is desirable at least seven insertions to be competent; however these insertions should be performed under supervision.

- All of them in women without anesthesia.

- Those with previous skill in IUD insertion could reduce the number of insertions.

The expulsion rate was of IUD / LNG IUS was higher among non-trained professionals.
Selected references:

1. Faculty of sexual and reproductive healthcare clinical effectiveness unit. FSRH Guidance, November 2007.


Center for Disease Control (CDC). U.S. Medical Eligibility Criteria for Contraceptive Use, 2010


Mirena prescribing information, March 22, 2011

Mirena product monograph, 8th edition, 2009


Additional resources


Additional resources


Additional resources


