Updates on Contraceptive Technology

Training Course in Sexual and Reproductive Health Research
Geneva 2013

08_XXX_MM1

Updates on Contraceptive Technology Part 2

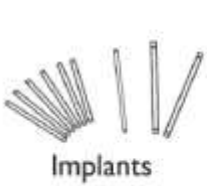
Kirsten Vogelsong
Mario Festin
Promoting Family Planning
Department of Reproductive Health and Research

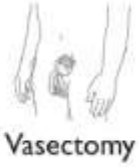
Training Course in Sexual and Reproductive Health Research
Geneva 2012

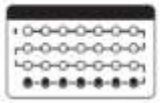
Comparing Effectiveness of Family Planning Methods

More effective

Less than 1 pregnancy per 100 women in one year







Less effective

About 30 pregnancies per 100 women in one year

How to make your method more effective

Implants, IUD, female sterilization: After procedure, little or nothing to do or remember

Vasectomy: Use another method for first 3 months

Injectables: Get repeat injections on time

Lactational Amenorrhea Method (for 6 months): Breastfeed often, day and night

Pills: Take a pill at the same time each day

Patch, ring: Keep in place, change on time

Condoms, diaphragm: Use correctly every time you have sex

Fertility awareness methods: Abstain or use condoms on fertile days. Standard Days Method and Two-Day Method may be easier to use.

Withdrawal, spermicides: Use correctly every time you have sex

08_XX_80

Outline and Objectives

- Description of the method
- Mechanism of action
- Effectiveness
- Eligibility criteria
- Benefits and side effects
- Interventions for associated effects

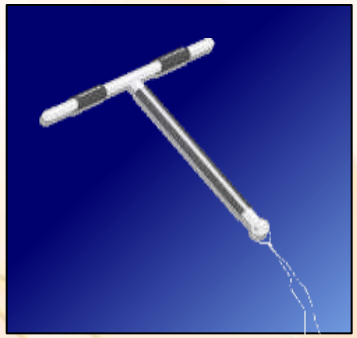
Methods

- Combined oral contraceptives
- Progestin only pills
- Injectable contraceptives, progestin-only
- Injectable contraceptives, combined
- Hormonal implants
- **IUDs (copper bearing)**
- **LNG IUS**
- **Male and female condoms**
- **Other barrier methods**
- **Fertility awareness, lactational amenorrhea**
- **Emergency contraception**
- **Tubal libation and vasectomy**
- **Other methods**

Copper Intrauterine Contraceptive Devices (IUDs or IUCDs)

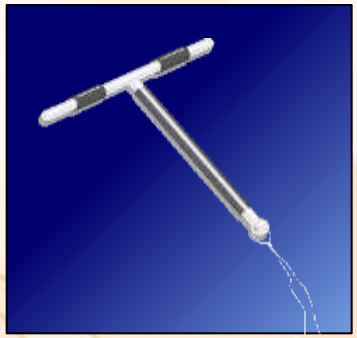
Copper T 380A

What is a Copper IUD?



- Small plastic device with copper sleeves or wire around it, inserted through the vagina and cervix into the uterus
  - Safe
  - Highly effective
  - Long acting (up to 12 years)
  - Require trained provider to insert and remove

Copper-bearing IUD



Copper T-380A

Multiload 375

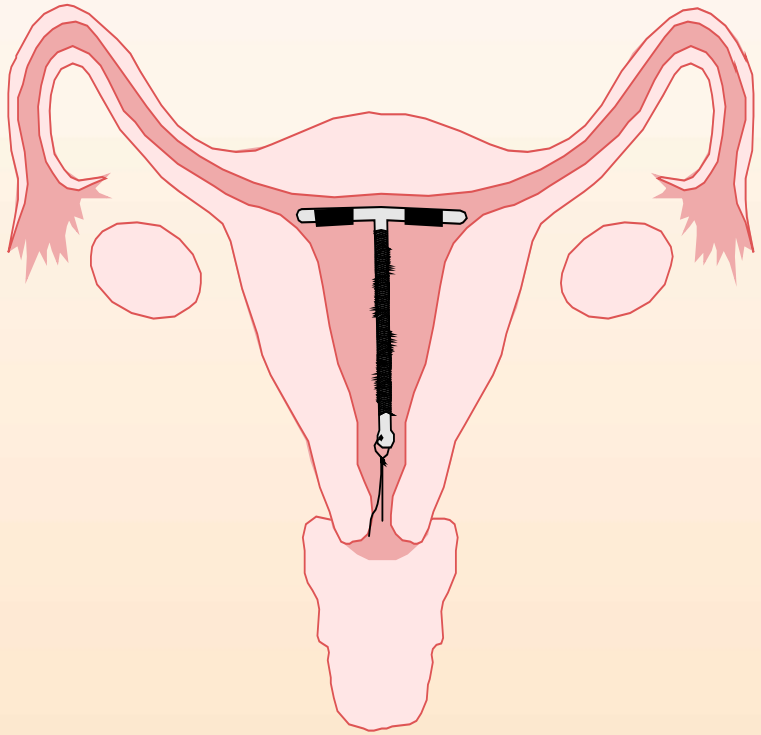
TCu-380A, “Copper T” is most widely used copper IUD

Multiload 375

Copper T: Mechanism of Action

Prevents fertilization by:

- Impairing the viability of the sperm
- Interfering with movement of the sperm



Source: Ortiz, 1996

Copper IUDs: Characteristics

- Safe and highly effective
- Require no user action
- Long-acting (up to 12 years)
- Rapid return to fertility
- No systemic effects
- Other health benefits

- Potential side effects
- Require pelvic exam
- Trained provider needed to insert and remove
- Possible pain or discomfort during insertion
- Do not protect against STIs/HIV
- Rare complications

Source: CCP and WHO, 2011

Copper IUDs: Possible Side Effects

Some women may experience:

- More cramps and pain during menstruation
- Increased or prolonged menstrual bleeding
- Bleeding between menstrual periods

Side effects are most common during the first 3–6 months.

Source: CCP and WHO, 2011; Larsson, 1993; DeMaeyer, 1989; WHO, 2004, updated 2008; WHO Special Programme of Research Development and Research Training in Human Reproduction, 1997

Copper IUDs: Health Benefits

IUDs are known to:

- Reduce risk of ectopic pregnancy
  - Rate in all IUD users is 12 in 10,000 (2 in 10,000 for Copper T380A users)
  - Rate in women using no contraception is 65 in 10,000
- Help protect against endometrial cancer

Source: CCP and WHO, 2011; Sivin, 1991.

Copper IUDs

Potential Complications

- Perforations—Very rare, 1 in 1,000 insertions
  - Linked to skill and experience of provider
  - Reduced through supervised training
- PID—Rare, most due to gonorrhea or chlamydia at time of insertion
- Expulsions—Related to provider skill, age and parity of woman and insertion factors

Expulsion Rates Are Higher for Postpartum Insertion

Timing of Insertion	Expulsion Rates
Interval (more than 6 weeks after delivery)	Low (3% for skilled provider)
Immediate postpartum (within 10 minutes)	Slightly higher
Early postpartum (between 10 minutes and 48 hours)	Moderately higher
Late Postpartum (48 hours to 4 weeks)	High - Generally not recommended

Source: Chi, et al, 1985.

Who Can Initiate Copper IUDs

WHO MEC category 1 and 2 examples

WHO MEC Category	**Conditions** (selected examples)
Category 1	≥20 years, cervical ectopy, uterine fibroids without distortion of the uterine cavity, irregular bleeding without heavy bleeding, breastfeeding > 6 weeks, history of PID
Category 2	Menarche to <20 years, nulliparous, heavy or prolonged bleeding, severe dysmenorrhea, anemia, HIV/AIDS infection, with or without ARV therapy

Source: WHO, 2004; updated 2008.

Who Should Not Initiate Copper IUDs

WHO MEC category 3 and 4 examples

WHO MEC Category	Conditions (selected examples)
Category 3	48 hours to <4 weeks postpartum, ovarian cancer/if initiating use, high individual risk of STI/ if initiating use
Category 4	pregnancy, unexplained vaginal bleeding (prior to evaluation), current PID or cervical infection, endometrial or cervical cancer/if initiating use

Source: WHO, 2004; updated 2008.

Timing of IUD Insertion

Interval insertion

- Within the first 12 days of menstrual cycle
- Any other time if woman is not pregnant

Postpartum insertion

- Immediately after vaginal or cesarean delivery if no infection or bleeding complications
- Within 48 hours or delay at least 4 weeks

Postabortion insertion

- Immediately or within 12 days if no infection

Source: WHO, 2004; updated 2008.

Side Effects

- Common side effects:
  - Heavier and/or prolonged menstrual bleeding
  - Menstrual cramping
  - Spotting between periods

- Side effects:
  - Are not signs of illness
  - Usually become less within the first 3–6 months

Correcting Misconceptions

IUDs:

- Rarely lead to PID
- Do not increase risk of STIs, including HIV
- Do not work by causing abortion
- Do not make women infertile
- Do not move to the heart or brain
- Do not cause birth defects
- Do not cause pain for either partner during sex
- Significantly reduce risk of ectopic pregnancy

Source: CCP and WHO, 2011.

Signs of Possible IUD Complications

- Bleeding and severe abdominal cramping within a few days post-insertion ➡ perforation
- Irregular bleeding or pain every cycle ➡ partial expulsion, perforation
- Fever, unusual vaginal discharge, low abdominal pain ➡ infection
- Missing IUD strings, missed period ➡ expulsion, pregnancy

Source: CCP and WHO, 2011.

Managing IUD Side Effects or Complications:

Heavy, Prolonged or Irregular Bleeding

Counseling and reassurance are key

Problem	Action/Management
Heavy or prolonged bleeding	• Reassure client that this is common and not harmful, usually diminishes after few months • For short-term relief offer 5-day course of tranexamic acid or NSAIDs (not aspirin) • Provide iron tablets
Irregular bleeding	• Reassure client • For short-term relief offer ibuprofen or indomethacin 2 times daily after meals for 5 days

Source: CCP and WHO, 2011.

Managing IUD Side Effects or Complications:

Cramping and Mild Pain

Counseling and reassurance are key

Problem	Action/Management
Cramping and mild pain	• She can expect cramping and pain in first 1–2 days after insertion • Reassure client that this is common in first 3–6 months, not harmful, usually decreases over time • Suggest ibuprofen, other pain reliever (not aspirin if she also has heavy bleeding) • If cramping continues, occurs outside of menstruation, evaluate, treat or refer • If cramping is severe but no underlying condition, discuss removing the IUD

Source: CCP and WHO, 2011.

Managing IUD Side Effects or Complications:
Severe Pain in Lower Abdomen (Rare)

- Rule out PID, ectopic pregnancy or perforation.
- If PID is suspected, treat with appropriate antibiotics for gonorrhea, chlamydia and anaerobic bacterial infection. There is no need to remove the IUD.
- If ectopic pregnancy is suspected, refer immediately.

Source: CCP and WHO, 2011.

Managing IUD Side Effects or Complications:

Suspected Perforation

- Stop procedure immediately, remove IUD
- Observe vital signs for an hour; check for signs of bleeding
  - If rapid pulse, falling blood pressure, or increased pain: refer
- Provide alternative contraception
  - Advise avoid sex for 2 weeks
- Follow-up in a week or as needed

Source: CCP and WHO, 2011.

Managing IUD Side Effects or Complications:

Missing Strings

- Determine risk of pregnancy
- Perform pelvic exam, probe for strings in cervical canal
- If cannot locate strings, consider X-ray or ultrasound, or refer
- Give choice of another contraceptive method
- Insert another IUD if expulsion is confirmed and
  - Woman is not pregnant
  - She still wants to use an IUD

Source: CCP and WHO, 2011.

Managing IUD Side Effects or Complications:

Suspected Pregnancy

- Assess for pregnancy, including ectopic pregnancy
- If the client is pregnant and wishes to continue the pregnancy:
  - Explain that using an IUD during pregnancy increases the risk of preterm delivery or miscarriage
  - If possible, remove the IUD
  - If not possible to remove, advise close follow-up for signs of septic miscarriage

Source: CCP and WHO, 2011.

Hormonal intrauterine device

LNG-IUS

Hormonal IUDs

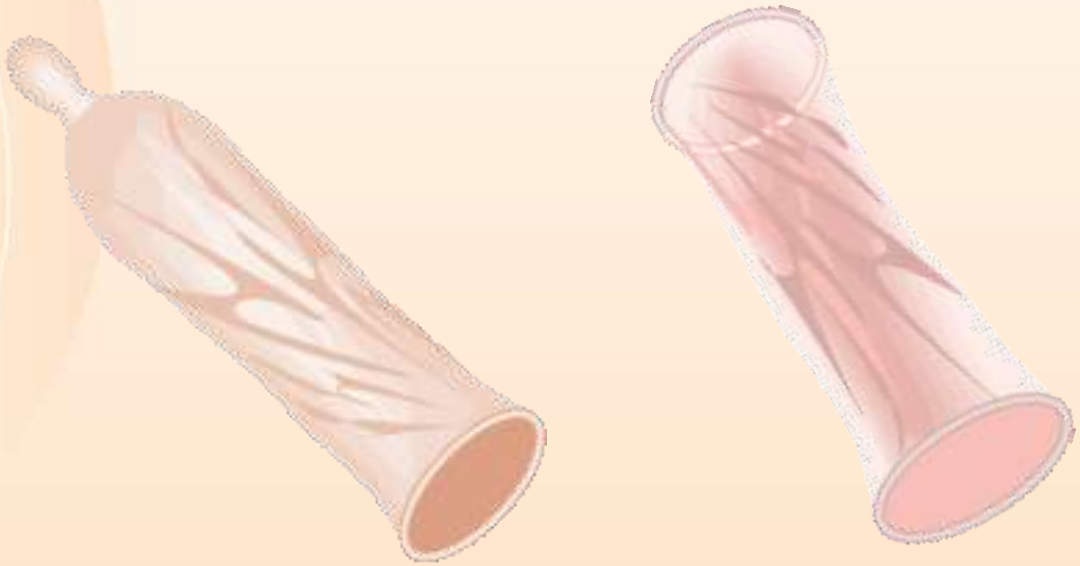
- Steadily release a progestin
- Levonorgestrel IUD (LNG-IUD) most common hormonal IUD
- Also known as LNG-intrauterine system (LNG-IUS)
- Immediately reversible
- Effective for 5 years

Other features of the LNG IUS

- Works primarily by suppressing the growth of the lining of the uterus
- Needs to be inserted into a uterus by a trained health care provider

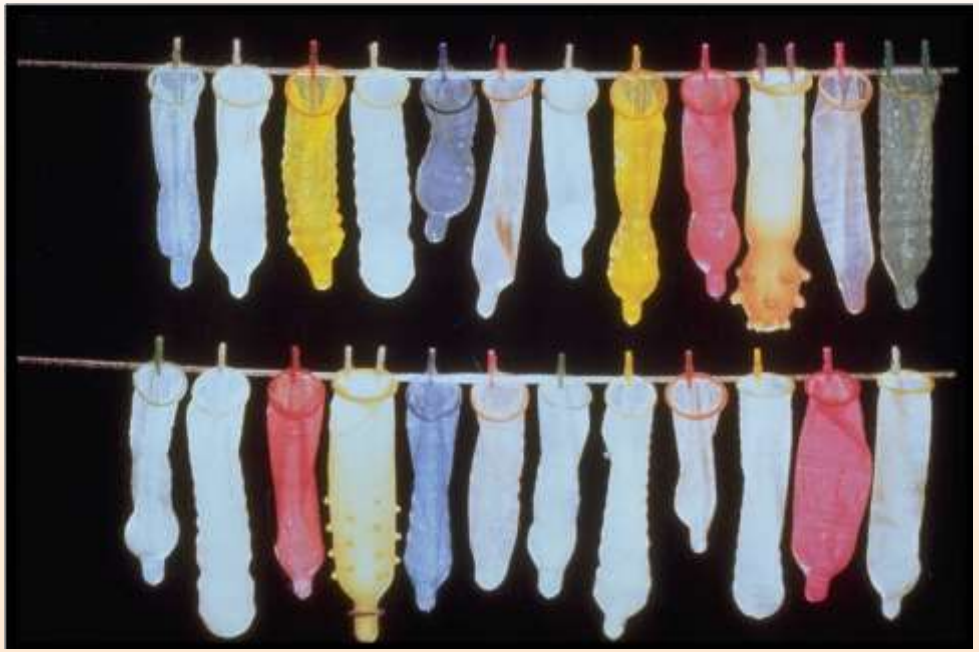
- Some report lighter, fewer or even absent bleeding days
- Also infrequent reports of headaches, breast tenderness or pain, acne

Male and Female Condoms



What Is a Male Condom?

- A sheath that fits over a man's erect penis
- Most are made of thin latex rubber
- Other materials include natural skin and various synthetics



What Is a Female Condom?

- A transparent sheath that fits loosely inside a woman's vagina
- Most common type is FC2—made of thin, soft, synthetic rubber film
  - Has flexible rings at both ends
- Natural latex female condoms available in some countries

Comparing Effectiveness of Male and Female Condoms

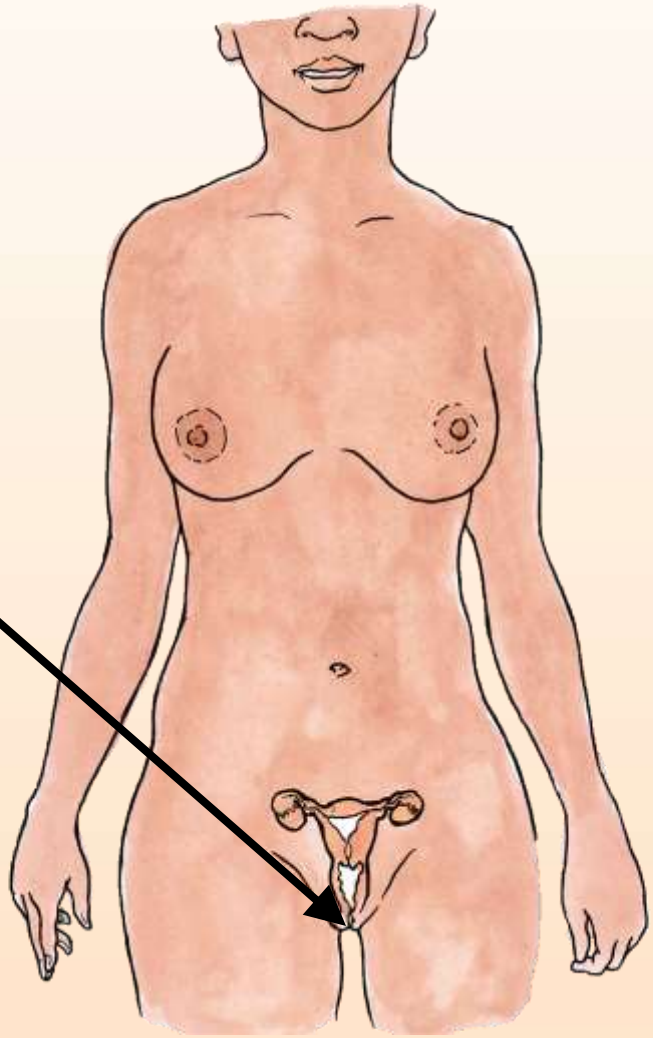
In real-life situations, correct and consistent use may be difficult to achieve

Pregnancy rates:	**Male**	**Female**
perfect use	2%	5%
typical use	15%	21%

Source: Hatcher, 2007.

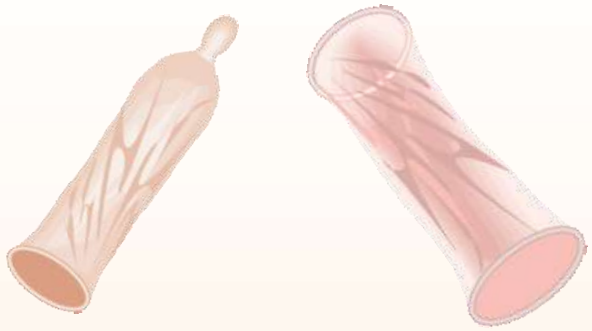
Condoms: Mechanism of Action

- **Create a barrier that keeps sperm from entering the vagina, thus preventing pregnancy**
- **Also form a barrier against STIs including HIV**



Male and Female Condoms

Dual Protection



Condoms are the *only* FP method that provides **dual protection:**

- Protection from pregnancy *and*
- Protection from transmission of HIV and other STIs between partners

Effectiveness for Preventing HIV and STIs

- The consistent, correct use of condoms significantly reduces the risk of HIV infection in men and women
- When used correctly with every act of sex, condoms are 80%–95% effective in preventing HIV infection
- Condoms prevent STIs transmitted through body fluids such as gonorrhea and chlamydia
- Condoms are less effective for preventing STIs transmitted by skin-to-skin contact, such as herpes and warts

Source: WHO/RHR and JHU/CCP, 2011; American Foundation for AIDS Research, 2005; Carey, 1992; Lytle, 1997

Characteristics of Male Condoms

- Safe and easy to use
- Widely available
- Effective when used consistently and correctly
- Provide dual protection
- No hormonal side effects
- Can help men with premature ejaculation
- Do not require provider's help
- Can be used as temporary backup method
- Protect women from conditions caused by STIs

Characteristics of Male Condoms

- As typically used, less effective than many other methods
- Require partner communication and cooperation
- Can be damaged by oil-based lubricants, heat, humidity or light
- May reduce sensation
- Can interrupt sex

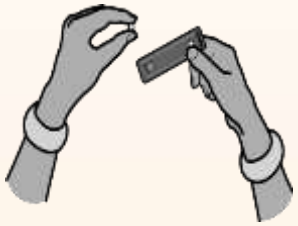
Who Can Use Male Condoms

- All men and women can safely use male condoms, *except* those with severe allergic reaction to latex
  - Extremely rare among both men and women
  - Non-latex condoms are available in some countries

Male Condoms

Managing Problems

- If condom not used—Offer emergency contraception



- If slipping or breaking—Ask about practices, behaviors

- If difficulty putting on—Ask client to demonstrate, correct errors

- Difficulty persuading partner to use—Help her choose approaches that will work
  Suggest adding another method

Managing Problems

Mild irritation or mild allergic reaction to condom—Itching, redness, rash and/or swelling

- Try another brand of condoms
- Put lubricant or water on the condom
- If symptoms continue, assess or refer for possible vaginal infection or STI
- If no infection, may have allergy to latex

Characteristics of **Female Condoms**
What Men and Women Like

What Women Like:

- Female-controlled
- Texture feels more natural than latex male condoms
- Offer STI/HIV protection
- Outer ring provides stimulation
- Do not require provider's help

What Men Like:

- Can be inserted in advance
- Are not tight or constricting
- Do not dull sensation
- Do not have to be removed immediately

Characteristics of **Female Condoms**

What Men and Women Don't Like

Limitations:

- May be difficult to insert at first, require practice
- Not as effective as other methods
- More expensive than male condoms
- Less available than male condoms

Who Can Use Female Condoms

- All men and women can use FC2
- Latex female condoms: Severe allergic reaction to latex is the only condition that prevents use
  - Extremely rare

Female Condoms

Managing Problems

- If having trouble inserting: Ask her to demonstrate
- If uncomfortable: Reinsert or reposition

- If condom squeaks: Use more lubricant
- If condoms slips or is not used correctly: Offer emergency contraception
- Difficulty persuading partner: Help her choose approaches that will work

Managing Problems

(Continued)

- Mild irritation in or around the vagina or penis (itching, redness, rash)
  - Usually goes away on its own
  - Suggest added lubricant inside condom or on penis
  - If symptoms persist, assess and treat for possible vaginal infection or STI

Responding to Myths and Fears

Male condoms:

- Do not make men impotent, weak, or decrease sex drive
- Do not cause illness in men because sperm “backs-up”

Female condoms:

- Are not difficult to use, but correct use needs to be learned
- Do not cause illness in women because they prevent semen from entering the body

Responding to Myths and Fears

(continued)

Both male and female condoms:

- Cannot get lost in woman's body
- Do not have holes that HIV can pass through
- Are not intended only for use outside of marriage, but also used by married couples

Other barrier methods

- **Diaphragm** – is placed deep in the vagina before sex, covering the cervix as a barrier, usually used with a spermicide
- When used correctly with every act of sex, 6 pregnancies per 100 women using the diaphragm over the first year.
- **Cervical caps** – is also placed deep in the vagina before sex, covering the cervix as a barrier.
- Not as effective, with 20 pregnancies per 100 women in the first year.

Other barrier methods

- Spermicide – applied deep in the vagina before every act of sex
  - Usually Nonoxynol 9, but other substances also available
  - Work by causing the membrane of sperm cells to break, killing them or slowing movement.
  - One of least effective methods, may be a primary or a back up method.
- Microbicide (either anti-infective alone or dual protection)

Fertility awareness methods

- Requires the cooperation of both partners, with a commitment to abstain or use another method on fertile days
  - Periodic abstinence
  - Natural family planning
- Must be aware of the body changes or keep track of days, according to rules of the specific methods.
- No side effects.

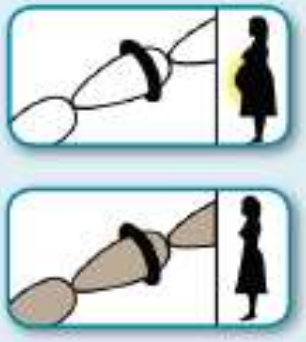
Fertility awareness methods

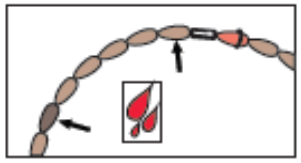
- Calendar based methods
  - Standard days methods
  - Calendar rhythm methods
- Symptoms based methods
  - Cervical secretions
  - Basal Body Temperature
    - Increase noted slightly after release of the egg or ovulation
  - Two day method
  - Sympto-thermal method

Standard Days Methods

- 95% effective with consistent and correct use
- A woman can use the SDM if most of her menstrual periods are 26 to 32 days long.
- Days 8 to 19 of each cycle are considered as fertile days.
- The couple can use cycle beads, a color-coded string of beads that indicates fertile and nonfertile days.

How to use cycle beads





- Move ring to RED bead when period starts

1

- Move ring to next bead every day. Move ring even on bleeding days

2

- Use condoms or abstain when ring is on WHITE beads

3

- BROWN beads are safe days of no pregnancy

4

- When period starts again move ring to red bead to begin again.

5

- Always check your period comes between dark brown bead and last brown bead.

Lactational amenorrhea

- A family planning method based on breastfeeding
- Can be effective for up to 6 months after delivery, as long as monthly bleeding has not returned and the woman is fully breastfeeding.
- Provides an opportunity to offer a woman an ongoing method for continuously 6 months

Lactational amenorrhea

- A woman with the following may want to consider other methods:
  - Has HIV infection
    - Especially if the woman is not taking ARVs, not fully breastfeeding, newly infected or has advanced disease.
  - Using certain medications (mood-altering drugs, reserpine, ergotamine, anti-metabolites, cyclosporine, high dose corticosteroids, bromocriptine, radioactive drugs, lithium and certain anticoagulants)
  - A newborn with a condition that makes it difficult to breastfeed

Emergency contraception

- Emergency contraceptive pills help to prevent pregnancy, if taken up to 5 days after unprotected sex and other situations such as
  - forced sex (rape) and contraceptive mistakes (condom slippage or breakage, misplaced IUD, late for injections, etc)
- Do not disrupt an existing pregnancy
- Safe for all women
- Provide an opportunity for women to start using an ongoing FP method
- Effectiveness (no method = 8 pregnancies/100 woman years)
  - Progestin only ECPs – 1 pregnancy per 100 women years
  - Combined estrogen progestin ECPs – 2 pregnancies per 100 women years.
- Copper IUD effective as emergency contraception, when inserted up to 7 days after unprotected sex

Emergency contraception

- Contains a progestin alone (levonorgestrel or ulipristal) or a progestin and an estrogen together
- Works primarily by preventing or delaying ovulation
- Does not work if the woman is already pregnant.

Pill type	Total dosage to provide
Levonorgestrel-only dedicated product	• 1.5 mg of levonorgestrel in a single dose.§
Estrogen-progestin dedicated product	• 0.1 mg ethinyl estradiol + 0.5 mg levonorgestrel. Follow with same dose 12 hours later.
Progestin-only pills with levonorgestrel or norgestrel	• Levonorgestrel pills: 1.5 mg levonorgestrel in a single dose. • Norgestrel pills: 3 mg norgestrel in a single dose.
Combined (estrogen-progestin) oral contraceptives containing levonorgestrel, norgestrel, or norethindrone	• Estrogen and levonorgestrel pills: 0.1 mg ethinyl estradiol + 0.5 mg levonorgestrel. Follow with same dose 12 hours later. • Estrogen and norgestrel pills: 0.1 mg ethinyl estradiol + 1 mg norgestrel. Follow with same dose 12 hours later. • Estrogen and norethindrone pills: 0.1 mg ethinyl estradiol + 2 mg norethindrone. Follow with same dose 12 hours later.

Family Planning Global Handbook

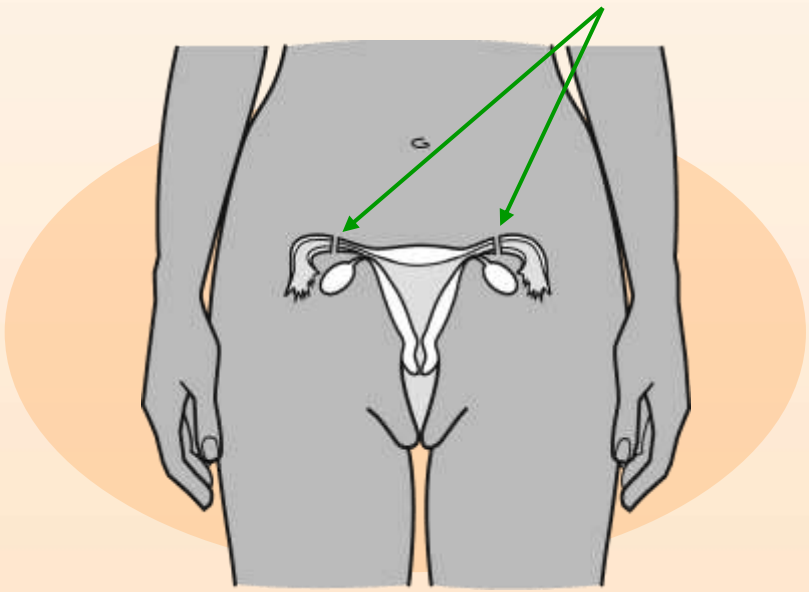
Correcting misconceptions about Emergency contraception

ECPs :

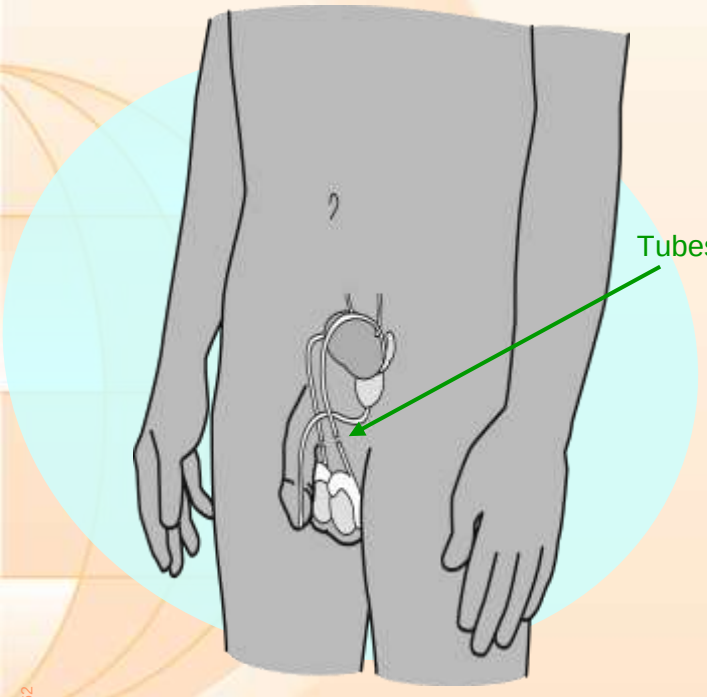
- Do not cause abortion
- Do not cause birth defects if pregnancy occurs
- Are not dangerous to a woman's health
- Do not promote sexual risk taking
- Do not make women infertile

Female Sterilization
Tubal Ligation

- Permanent method, done through mini-laparotomy (small incision) or laparoscopy
- One of the most effective methods with less than 5 failures per 1000 women
- May be used by any woman
- Counselling needed to ensure no post procedural regrets



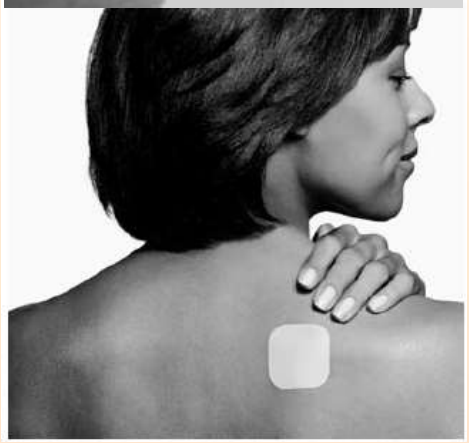
Male Sterilization
Vasectomy



- Simple permanent surgical method in men
- With a 3 month delay in taking effect due to storage of sperm
- Tubes that carry sperm to the penis (vas deferens) are cut and ligated (by sutures or cautery)
- May be done using non-scalpel technique
- Less than 2 per 1000 pregnancies over first year
- Does not affect male performance nor provides increase risk for cancer

Other methods

- Ring
  - Requires keeping a flexible ring which releases progestins and estrogen which are absorbed by the body
  - Kept for 3 weeks, and woman menstruates in 4th week
  - Prevents ovulation
- Patch
  - Requires wearing a small adhesive patch with estrogen and progestins weekly, for 3 weeks
  - Works by preventing ovulation



Acknowledgments and References

- Main Reference:
  - Family Planning – A Global Handbook for Providers (http://www.globalhandbook.org/)
- Acknowledgements
  - Family Health International
  - Knowledge for Health
  - Institute of Reproductive Health

Updates on Contraceptive Technology