Updates on Contraceptive Technology Part 2

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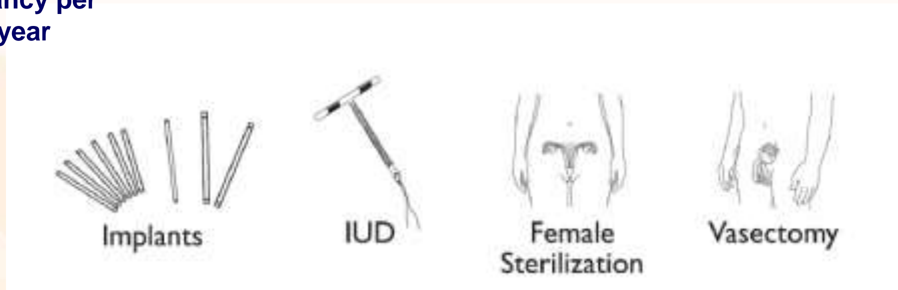
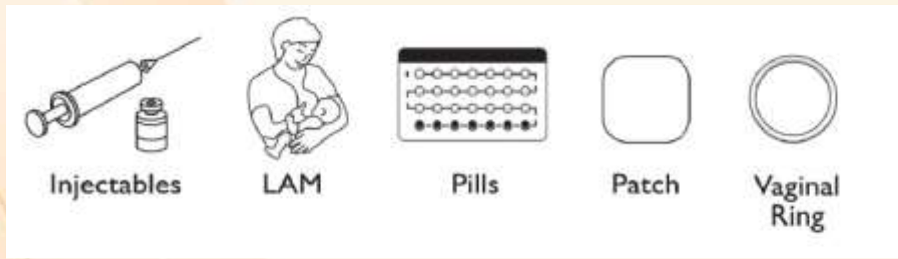
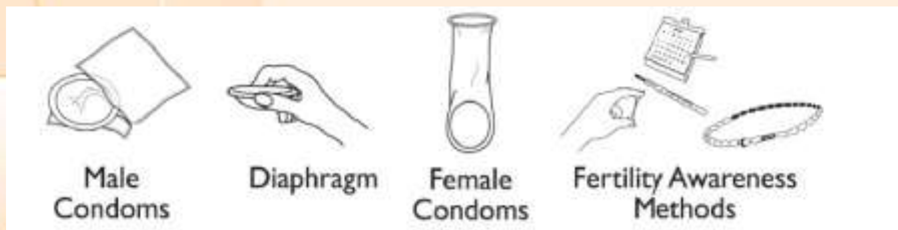
Training Course in Sexual and Reproductive Health Research
Geneva 2015

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

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

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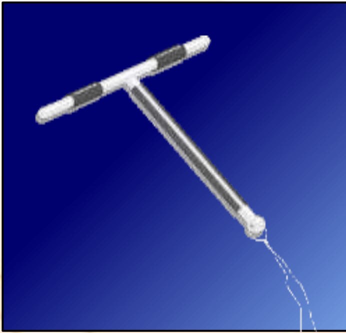
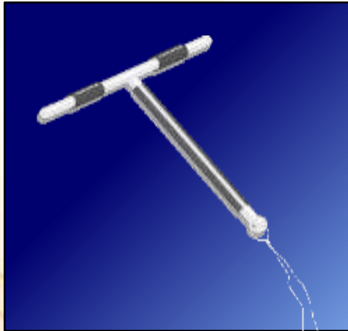
What is a Copper IUD?



- 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

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

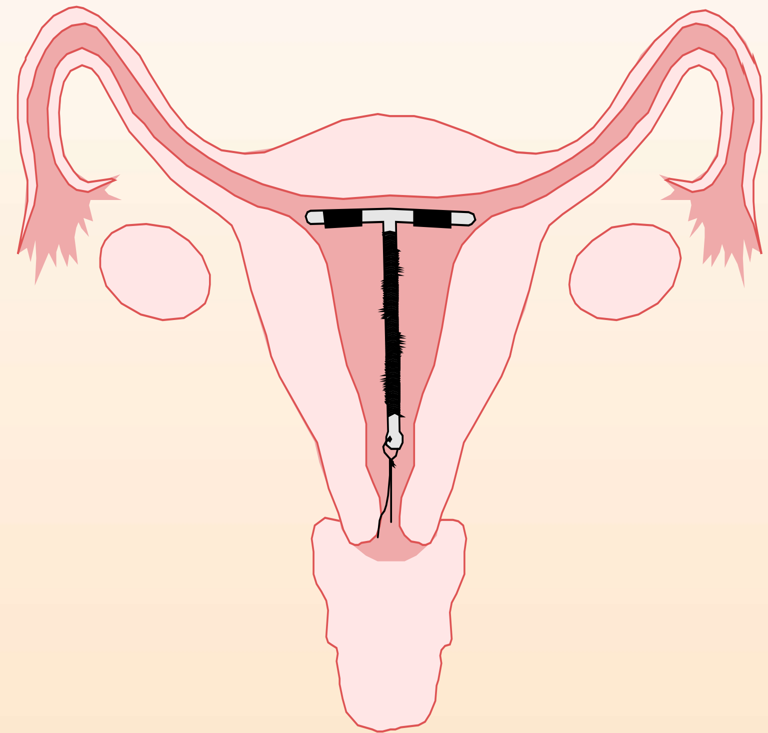
Multiload 375

Multiload 375

Copper T: Mechanism of Action

Prevents fertilization by:

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



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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

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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.

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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

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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.

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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.

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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.

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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

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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.

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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.

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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.

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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

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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

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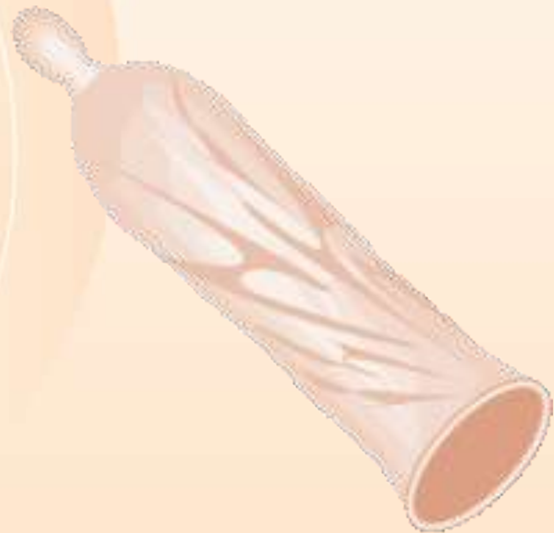
Other features of the LNG IUS

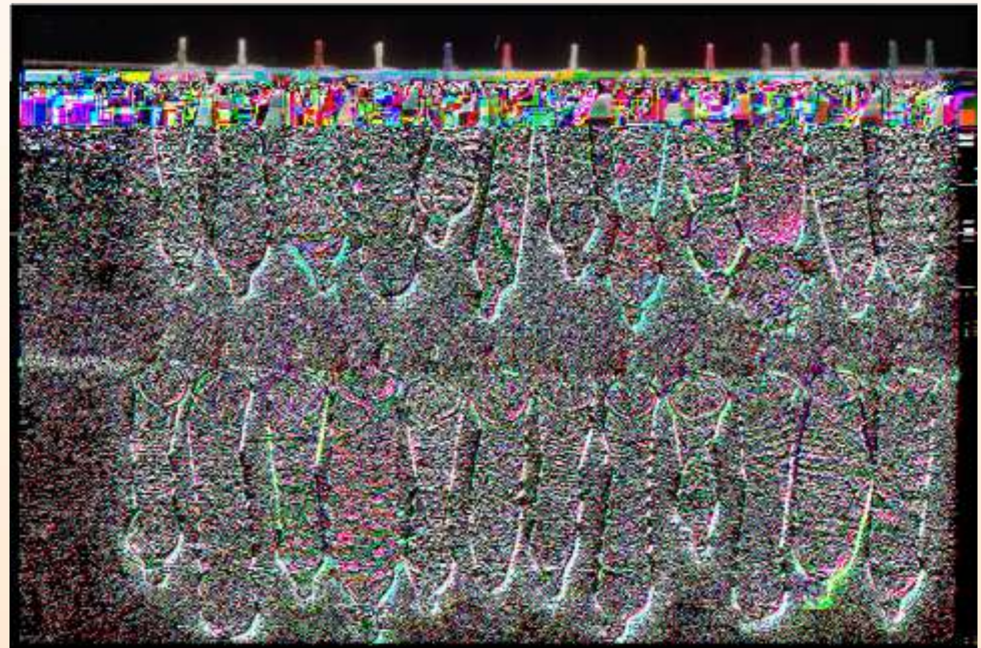
- Works primarily by suppressing the growth of the lining of the uterus
- Needs to be inserted into a uterus by a trained health care provider
- Some report lighter, fewer or even absent bleeding days
- Also infrequent reports of headaches, breast tenderness or pain, acne

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.

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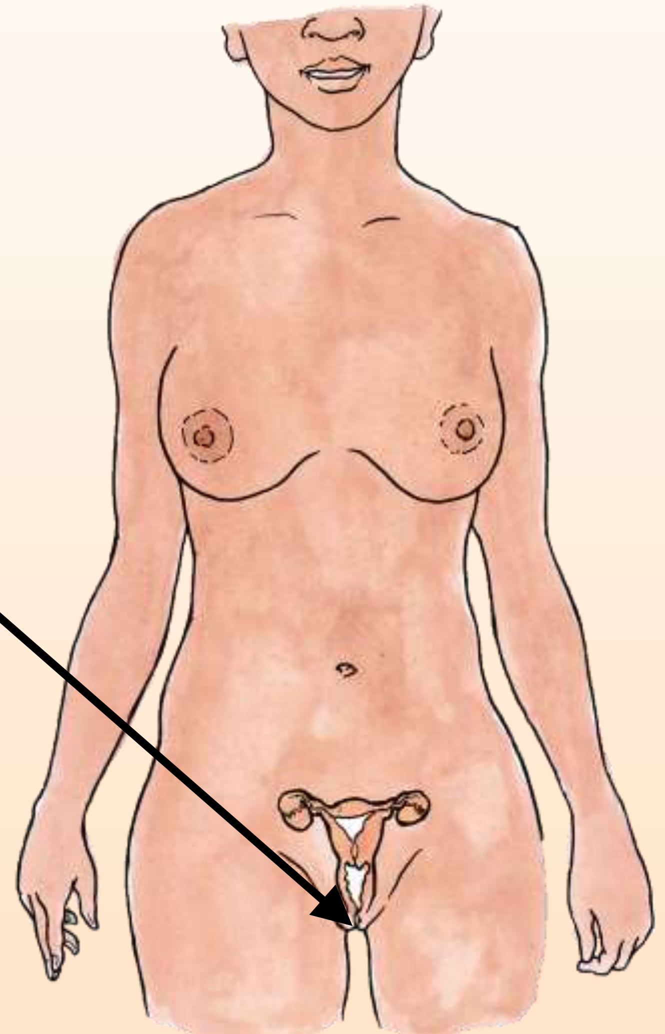
Condoms: Mechanism of Action

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



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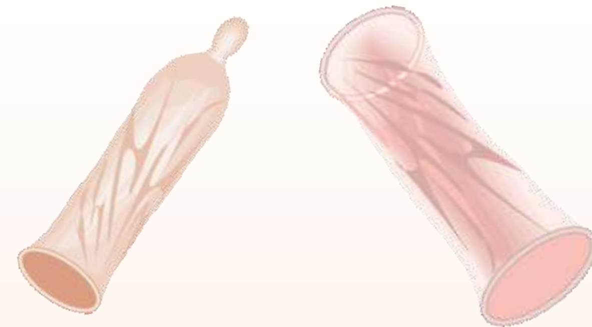
Dual Protection



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

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

Male and Female Condoms

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

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Characteristics of Male Condoms

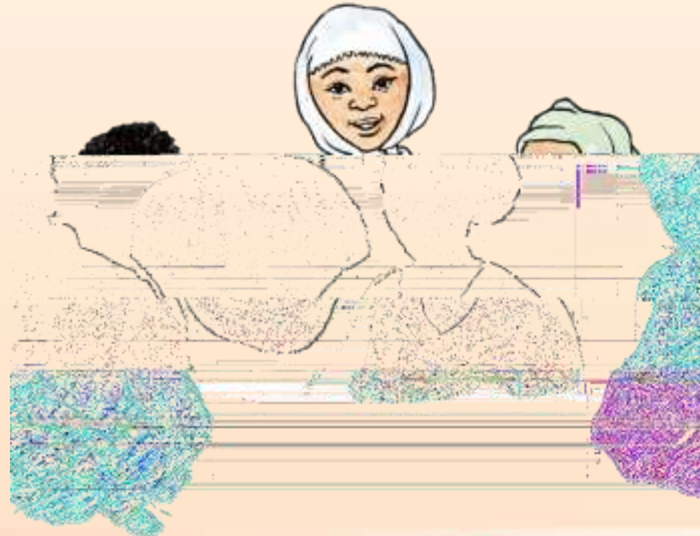
- Safe and easy to use
- Widely available
- Effective when used consistently and correctly
- Provide dual protection
- No hormonal side effects
- Can help men with premature ejaculation
- Do not require provider's help
- Can be used as temporary backup method
- Protect women from conditions caused by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



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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

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Male Condoms

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

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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

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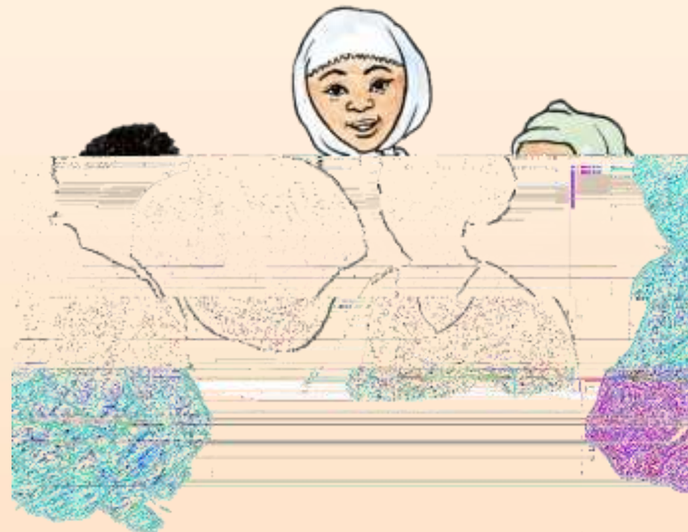
Who Can Use Female Condoms

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



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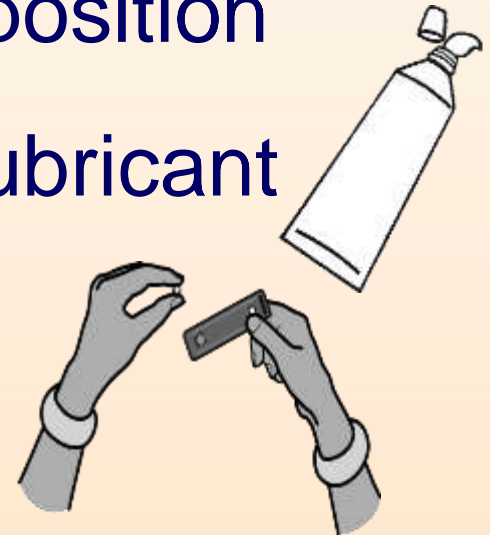
Managing Problems

- 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

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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)

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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.

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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.

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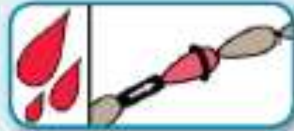
How to use cycle beads



- Move ring to RED bead when period starts

❶

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

❷

- Use condoms or abstain when ring is on WHITE beads

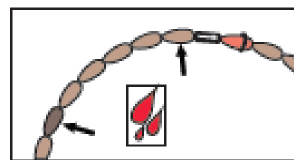
❸

❹

- BROWN beads are safe days of no pregnancy

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

❺



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

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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.

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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

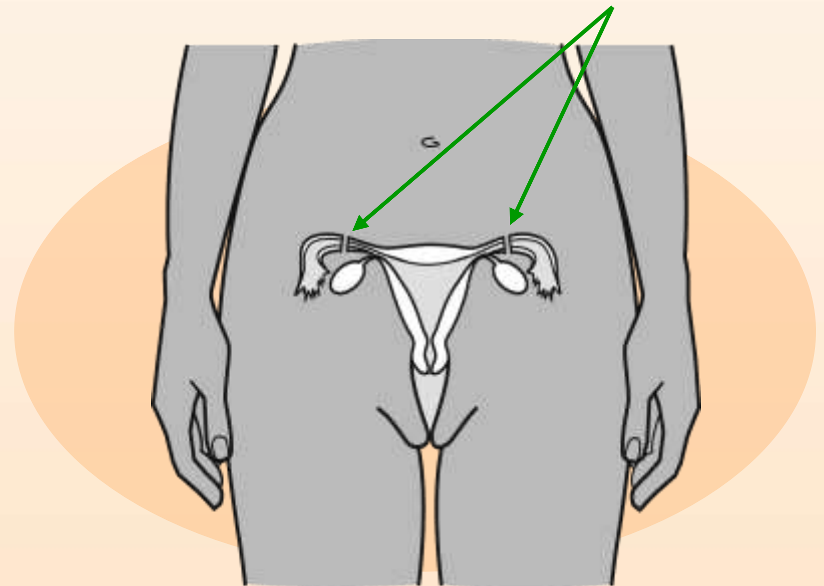
Correcting misconceptions about Emergency contraception

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



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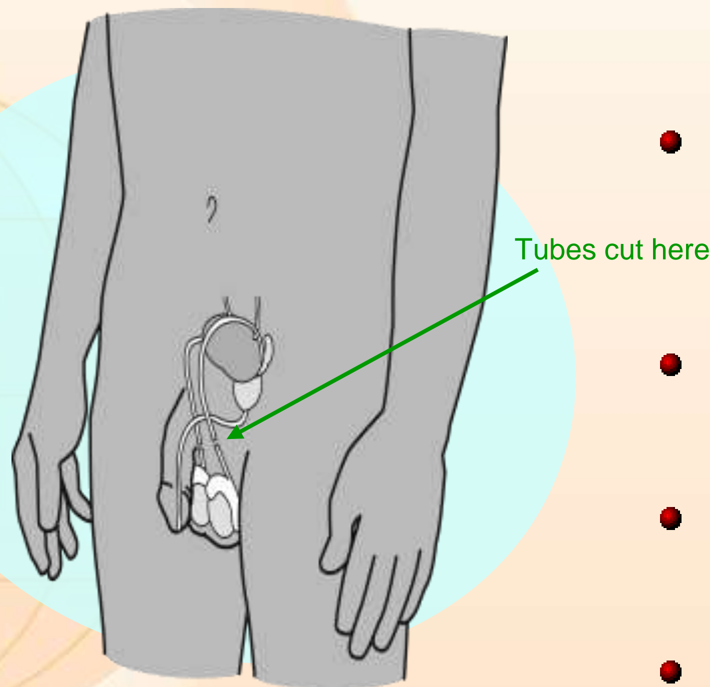
Male Sterilization Vasectomy



- 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

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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

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Acknowledgments and References

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

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