Updates on Contraceptive Technology
Part 2

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Key Facts about family planning/contraception

- 214 million women of reproductive age in developing countries who want to avoid pregnancy are not using a modern contraceptive method (unmet need for modern contraception).
- Some family planning methods, such as condoms, help prevent the transmission of HIV and other sexually transmitted infections.
- Family planning / contraception reduces the need for abortion, especially unsafe abortion.
- Family planning reinforces people’s rights to determine the number and spacing of their children.
- By preventing unintended pregnancy, family planning / contraception prevents deaths of mothers and children.
Main benefits of family planning/contraception

- Secures the well being and autonomy of women
- Supports the health and development of communities
- Prevents unplanned pregnancy and pregnancy-related health risks of women
- Prevents adolescent pregnancy
- Reduces infant mortality and prevents HIV/AIDS transmission to newborns
- Empowers people and enhances education
- Slows population growth
Unmet need for contraception

Definition

- Women with unmet need are those who are *fecund and sexually active* but are not using any method of *contraception*, and report not wanting any more children or wanting to delay the next child.

- The concept of unmet need points to the gap between women's *reproductive intentions* and their *contraceptive behavior*.

**Unmet need** is especially high among groups such as:

- Adolescents
- Migrants
- Urban slum dwellers
- Refugees
- Women in the postpartum period
Reasons for unmet need for modern FP/ C

- limited choice of methods;
- limited access to contraception, particularly among young people, poorer segments of populations, or unmarried people;
- fear or experience of side-effects;
- cultural or religious opposition;
- poor quality of available services;
- users and providers bias;
- gender-based barriers.
World contraceptive use
Percentage of women using some method of contraception among those aged 15-49 who are married or in a union
Comparing Effectiveness of Family Planning Methods

More effective
Less than 1 pregnancy 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.

Less effective
About 30 pregnancies per 100 women in one year

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
- 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 ligation and vasectomy
- Other methods
Copper Intrauterine Contraceptive Devices (IUDs or IUCDs)
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

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

Multiload 375 – less commonly available
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.*

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

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

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

# Who Can Initiate Copper IUDs

**WHO MEC category 1 and 2 examples**

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

## Who Should Not Initiate Copper IUDs

### WHO MEC category 3 and 4 examples

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

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

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

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

Managing IUD Side Effects or Complications: Heavy, Prolonged or Irregular Bleeding

*Counseling and reassurance are key*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
</table>
| 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*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
</table>
| 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.

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

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

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

Hormonal intrauterine device
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
- Category 4 if immediate post-septic abortion, before evaluation of unexplained vaginal bleeding, or with malignant trophoblastic disease, with current breast cancer
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

• Also natural latex female condoms (Cupid) available in some countries
Comparing Effectiveness of Male and Female Condoms

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

<table>
<thead>
<tr>
<th>Pregnancy rates:</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>perfect use</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>typical use</td>
<td>15%</td>
<td>21%</td>
</tr>
</tbody>
</table>

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
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.

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
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
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
Female Condoms

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

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

• Use condoms or abstain when ring is on WHITE beads

• BROWN beads are safe days of no pregnancy

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

• 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 when all the following conditions are present
  - Infant is less than 6 months old,
  - 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.
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.

- Copper IUD effective as emergency contraception, when inserted up to 7 days after unprotected sex
- IUDs when used as emergency contraception, can then be continued to be regular contraception
<table>
<thead>
<tr>
<th>Pill Type and Hormone</th>
<th>Formulation</th>
<th>Pills to Take At First</th>
<th>12 Hours Later</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dedicated ECP Products</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progestin-only</td>
<td>1.5 mg LNG</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.75 mg LNG</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Ulipristal acetate</td>
<td>30 mg ulipristal acetate</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Oral Contraceptive Pills Used for Emergency Contraception</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined (estrogen-progester)</td>
<td>0.02 mg EE +</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Oral contraceptives</td>
<td>0.1 mg LNG</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.03 mg EE +</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0.15 mg LNG</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>0.03 mg EE +</td>
<td>4</td>
<td>4</td>
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<tr>
<td></td>
<td>0.15 mg LNG</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.03 mg EE +</td>
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<td>0.03 mg EE +</td>
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<td></td>
<td>0.3 mg norgestrel</td>
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<td></td>
<td>0.05 mg EE +</td>
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<td>2</td>
</tr>
<tr>
<td></td>
<td>0.5 mg norgestrel</td>
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<td></td>
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<tr>
<td>Progestin-only pills</td>
<td>0.03 mg LNG</td>
<td>50*</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.0375 mg LNG</td>
<td>40*</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0.075 mg norgestrel</td>
<td>40*</td>
<td>0</td>
</tr>
</tbody>
</table>

* Many pills, but safe. See Question 8, p. 63.

LNG = levonorgestrel    EE = ethinyl estradiol

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
  - Progesterone only vaginal rings may be used by breastfeeding women

- **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
    (https://www.fphandbook.org/)

- Acknowledgements
  - Family Health International
  - Knowledge for Health
  - Institute of Reproductive Health
MEC 5th Edition Recommendations

- Details of the recommendations on the methods are available in the full MEC 5th edition document.
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