Updates on Contraceptive Technology
Part 1

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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.

Withdrawal, spermicides: Use correctly every time you have sex

Less effective
About 30 pregnancies per 100 women in one year
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
Combined Oral Contraceptive Pills (COCs)
What are COCs? Traits and types

<table>
<thead>
<tr>
<th>Content</th>
<th>Combination of two hormones: estrogen and progestin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phasic</td>
<td>Monophasic, biphasic, triphasic</td>
</tr>
<tr>
<td>Dose</td>
<td>Low-dose (most common): 30-35 µg of estrogen or less</td>
</tr>
<tr>
<td></td>
<td>High-dose: 50 µg of estrogen (used mostly for emergency contraception)</td>
</tr>
<tr>
<td>Pills per pack</td>
<td>21: all active pills (7-day break between packs)</td>
</tr>
<tr>
<td></td>
<td>28: 21 active + 7 inactive pills (no break between packs)</td>
</tr>
</tbody>
</table>
COCs: Mechanism of action

Suppresses hormones responsible for ovulation

Thickens cervical mucus to block sperm

COCs have no effect on an existing pregnancy.
COCs: Characteristics

- Safe and more than 99% effective if used correctly
- Not as effective when not used correctly (92%)
- May be stopped at any time
- Require daily intake
- Rapid return to fertility
- Do not provide protection from STIs/HIV
- Do not interfere with sex
- Have side effects and rare adverse health risks
- Have health benefits
- Rapid return to fertility
- Can be stopped at any time
- Do not interfere with sex
- Have health benefits

COCs: Side effects

Non-menstrual
- Nausea
- Weight change
- Dizziness
- Mild headaches
- Breast tenderness
- Mood changes

Menstrual
- Breakthrough light bleeding and spotting
- Amenorrhea

*Side effects are not experienced by all users. They are not harmful but may be unpleasant.*

COCs: Health benefits

Non-menstrual
- Protection from ovarian and endometrial cancers
- Decreased symptoms of endometriosis
- Reduced risk of functional ovarian cysts, ectopic pregnancy and symptomatic PID

Menstrual
- Reduced symptoms of premenstrual syndrome
- Decreased bleeding during menses
- Reduced discomfort during menses

Ovarian and endometrial cancer protection
effect of COC use

Lifetime risk of acquiring ovarian or endometrial cancer after 8+ years of COC use
Number per 100 women

- Reduces risk by more than 50%.
- Protection develops after 12 months of use and is present for at least 15 years.

COCs: Health risks

- Risk of blood clots due to COC use is limited and concentrated among women who have additional risk factors (hypertension, diabetes, smoking).
- Screening for existing risk factors is important.
- Pregnancy presents a higher risk of blood clots than COC use does.
## COC users and risk of blood clots

### Estimates of venous thromboembolism per 100,000 woman-years

<table>
<thead>
<tr>
<th></th>
<th>Incidence</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young women in the general population</td>
<td>4–5</td>
<td>1</td>
</tr>
<tr>
<td>Low-dose COCs</td>
<td>12–20</td>
<td>3–4</td>
</tr>
<tr>
<td>High-dose COCs</td>
<td>24–50</td>
<td>6–10</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>48–60</td>
<td>12</td>
</tr>
</tbody>
</table>

### Estimated number of heart attacks per million woman-years

<table>
<thead>
<tr>
<th></th>
<th>Age 20-24</th>
<th>Age 30-34</th>
<th>Age 40-44</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy non-COC user</td>
<td>0.14</td>
<td>1.7</td>
<td>21.3</td>
</tr>
<tr>
<td>Healthy COC user</td>
<td>0.34</td>
<td>4.2</td>
<td>53.2</td>
</tr>
<tr>
<td>COC user who smokes</td>
<td>1.6</td>
<td>20.4</td>
<td>255</td>
</tr>
<tr>
<td>COC user with ↑ BP</td>
<td>2.0</td>
<td>25.5</td>
<td>319</td>
</tr>
</tbody>
</table>

COCs: Health risks - breast cancer

- No overall increase in breast cancer risk among women who ever used COCs.
- Very slight increase in breast cancer risk in current COC users and within 10 years of discontinuation.
Relative risk for breast cancer among COC users and non-users


Relative Risk Log Scale

<table>
<thead>
<tr>
<th>Time after Stopping</th>
<th>Relative Risk</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-users</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Current COC users</td>
<td>1.24</td>
<td>[1.15–1.33]</td>
</tr>
<tr>
<td>1–4 yrs after stopping</td>
<td>1.16</td>
<td>[1.08–1.23]</td>
</tr>
<tr>
<td>5–9 yrs after stopping</td>
<td>1.07</td>
<td>[1.02–1.13]</td>
</tr>
<tr>
<td>10+ yrs after stopping</td>
<td>1.01</td>
<td>[0.96–1.05]</td>
</tr>
</tbody>
</table>
COCs: Health risks – cervical cancer

- Small increase in risk of cervical cancer among women with HPV who use COCs more than five years.
- COC users should follow the same cervical screening schedule as other women.
## Who can initiate COCs

### WHO Category 1 and 2 examples

<table>
<thead>
<tr>
<th>WHO Category</th>
<th>Conditions (selected examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category 1</strong></td>
<td>menarche to 39 yrs; nulliparous; endometriosis; endometrial or ovarian cancer; uterine fibroids; family history of breast cancer; varicose veins; irregular, heavy, or prolonged bleeding; anemia; STI/PID; hepatitis (chronic/carryer)</td>
</tr>
<tr>
<td><strong>Category 2</strong></td>
<td>≥40 yrs; breastfeeding ≥6 months postpartum; with superficial venous disorders; uncomplicated diabetes; cervical cancer; unexplained vaginal bleeding; undiagnosed breast mass; known dyslipidemia</td>
</tr>
</tbody>
</table>
### Who should not initiate COCs

**WHO Category 3 examples**

<table>
<thead>
<tr>
<th>WHO Category 3 Conditions</th>
<th>Postpartum:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breastfeeding between 6 weeks and 6 months</td>
</tr>
<tr>
<td></td>
<td>Non-breastfeeding &lt;21 days</td>
</tr>
</tbody>
</table>

**Vascular conditions:**
- Hypertension (history of or BP 140-159/90–99)
- Migraine without aura (older than 35 yrs)

**Liver conditions:**
- Symptomatic gall bladder disease (including medically-treated)

**Drug interactions:**
- Use of rifampicin, rifabutin, ritonavir

*Source: WHO, 2010; Sekar, 2008.*
## Who should not initiate COCs

### WHO Category 4 examples

<table>
<thead>
<tr>
<th>WHO Category 4 Conditions</th>
<th>Breastfeeding: &lt;6 weeks postpartum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking:</td>
<td>&gt;15 cigarettes/day and &gt;35 yrs old</td>
</tr>
<tr>
<td>Vascular conditions:</td>
<td>Hypertension (≥160/≥100)</td>
</tr>
<tr>
<td></td>
<td>Migraines with aura</td>
</tr>
<tr>
<td></td>
<td>Ischemic heart disease or stroke</td>
</tr>
<tr>
<td></td>
<td>Diabetes with vascular complications</td>
</tr>
<tr>
<td></td>
<td>Deep venous thrombosis (history or acute)</td>
</tr>
<tr>
<td></td>
<td>Pulmonary embolism (history or acute)</td>
</tr>
<tr>
<td>Rheumatic disease:</td>
<td>lupus</td>
</tr>
<tr>
<td>Liver conditions:</td>
<td>Acute hepatitis</td>
</tr>
<tr>
<td></td>
<td>Severe liver disease and most liver tumors</td>
</tr>
<tr>
<td>Breast cancer:</td>
<td>current or within 5 yrs</td>
</tr>
</tbody>
</table>

*Source: WHO, 2010.*
COC use by women with HIV

- Women with HIV or AIDS can use COCs without restrictions
- Women on ARVs other than ritonavir can use COCs safely
- May now be used by women who take ritonavir (now category 2)
- Using low-dose COCs is appropriate
- Condom use should be encouraged in addition to COCs

**WHO Eligibility Criteria**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-infected</td>
<td>1</td>
</tr>
<tr>
<td>AIDS</td>
<td>1</td>
</tr>
<tr>
<td>ARV therapy (which does not contain ritonavir)</td>
<td>1</td>
</tr>
<tr>
<td>Ritonavir/ritonavir-boosted PIs (as part of ARV regimen)</td>
<td>2</td>
</tr>
</tbody>
</table>

When to initiate COCs

- If starting during the first 5 days of the menstrual cycle, no backup method needed.

- After day 5, rule out pregnancy and use backup method for the next 7 days.

- Pregnancy can be ruled out if the woman:
  - Is fully breastfeeding, has no menses and her baby is less than 6 months old.
  - Has abstained from intercourse since last menses or delivery.
  - Had a baby in the past 4 weeks.
  - Started monthly bleeding within the past 7 days.
  - Had a miscarriage or an abortion in the past 7 days.
  - Is using a reliable contraceptive method consistently and correctly.

- Negative pregnancy test or pelvic exam (if none of the above apply).

When to initiate COCs (continued)

- After miscarriage or abortion
  - If within 7 days after miscarriage or abortion, no backup method needed
  - If more than 7 days after, rule out pregnancy, use backup method for 7 days

- Switching from hormonal method
  - May start immediately, no backup method needed (with injectables, initiate within reinjection window)

- Switching from non-hormonal method
  - If starting within 5 days of start of menstrual cycle, no backup method needed
  - If starting after day 5 of cycle, use backup method for 7 days

- After using emergency contraceptive pills
  - initiate next day, use backup method for 7 days

How to take COCs: Missed pills

Miss 1 or 2 active pills in a row or start a pack 1 or 2 days late:

• Always take a pill as soon as possible
• Continue to take one pill every day
• No need for additional protection

Miss 3 or more active pills in a row or start pack 3 or more days late:

• Take a pill as soon as possible, continue taking 1 pill each day, and use condoms or avoid sex for the next 7 days

• If these pills were missed in week 3, ALSO skip the reminder pills and start a new pack

If reminder pills are missed:

Throw away the missed pills and continue taking pills, 1 each day.

Correcting misconceptions

COCs:

- Do not build up in a woman’s body. Women do not need a “rest” from taking COCs.
- Must be taken every day, whether or not a woman has sex that day.
- Do not make women infertile.
- Do not cause birth defects or multiple births.
- Do not change women’s sexual behavior.
- Do not collect in the stomach. Instead, the pill dissolves each day.
- Do not disrupt an existing pregnancy.
Management of COC Side Effects

Non-menstrual problems

**Counseling and reassurance are key**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
<th>If side effects persist and are unacceptable to client:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common headaches</td>
<td>Reassure client: usually diminish over time; take painkillers</td>
<td>if possible, switch pill formulations or switch to another method</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>Take pills with food or at bedtime</td>
<td></td>
</tr>
<tr>
<td>Weight change</td>
<td>Inform about healthy eating habits and exercise</td>
<td></td>
</tr>
</tbody>
</table>

*Source: CCP and WHO, 2011.*
### Management of COC Side Effects

#### Bleeding changes

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irregular vaginal bleeding</td>
<td>Reassure client: reinforce correct pill taking and review missed pill instructions; ask about other drugs that may interact with COCs; administer short course of non-steroidal anti-inflammatory drugs.</td>
</tr>
<tr>
<td></td>
<td>If side effects persist and are unacceptable to client: if possible, switch pill formulations or switch to another method</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>Reassure client: no medical treatment necessary</td>
</tr>
</tbody>
</table>

*Source: CCP and WHO, 2011.*
Extended use COCs

- Some users do not follow the usual cycle of 3 weeks on and 1 week off, rather take pills for 12 weeks without a break, followed by 1 week off.
- Have vaginal bleeding only 4 times a year or none at all.
- Reduces side effects (headaches, PMS, mood changes, bleeding) during the week without pills.
Extended use COCs

Extended Use Instructions

- Skip the last week of pills (without hormones) in 3 packs in a row. (21-day users skip the 7-day waits between the first 3 packs.) No backup method is needed during this time.

- Take all 4 weeks of pills in the 4th pack. (21-day users take all 3 weeks of pills in the 4th pack.) Expect some bleeding during this 4th week.

- Start the next pack of pills the day after taking the last pill in the 4th pack. (21-day users wait 7 days before starting the next pack.)
Progestin-Only Injectable Contraceptives: DMPA and NET-EN
What are progestin-only injectables?

- Contraceptives administered by deep intramuscular (150ug) or subcutaneous injection (104 ug)
- Contain progestin—similar to the natural hormone progesterone
- Hormone released into bloodstream slowly

Types of progestin-only injectables

- DMPA (depot medroxyprogesterone acetate)
  - Injection every 13 weeks
- NET-EN (norethisterone enanthate)
  - Injection every 8 weeks

Have similar effectiveness and safety characteristics and eligibility criteria

Characteristics of progestin-only injectables

- Safe and highly effective
- Easy to use
- Can be discontinued without provider’s help
- Can be provided outside of clinics
- Can be used by breastfeeding women
- Can be used privately
- Provide non-contraceptive health benefits
  - Delay return to fertility
  - Provide no protection from STIs/HIV

Source: CCP and WHO, 2011
DMPA: Menstrual bleeding changes

Other possible side effects

- Weight gain: Average 1–2 kg per year
- Less common:
  - Headaches
  - Dizziness
  - Abdominal bloating/discomfort
  - Mood changes
  - Changes in sex drive
- Loss of bone density

Effect of DMPA on bone density

- DMPA users have lower bone density than non-users
- Women initiating DMPA use as adults regain most lost bone following discontinuation
- Long-term effect in adolescents unknown
  - Possibility of osteoporosis
  - Long-term studies are needed
  - Generally acceptable to use

Comparing DMPA and NET-EN side effects

- No significant difference in:
  - Proportion of clients who experienced vaginal bleeding/spotting events
  - Duration of vaginal bleeding/spotting events at 12 and 24 months
  - Changes in body weight
  - Changes in blood pressure
  - Frequency of discontinuation at 12 months
  - Reasons for discontinuation

- Women who receive appropriate counselling are more likely to continue using injectables.

Source: Draper et al., 2006.
Injectables and risk of breast cancer

- Recent large study found no increased risk of breast cancer in current or past DMPA users regardless of age and duration of use.

- Little research has been done on NET-EN.

Source: Strom et al, 2004
Health benefits of DMPA and NET-EN

**DMPA**
- Helps protect against endometrial cancer and uterine fibroids
- May help protect against symptomatic PID and iron-deficiency anemia
- Reduces sickle cell crises in women with sickle cell anemia
- Reduces symptoms of endometriosis (pelvic pain, irregular bleeding)

**NET-EN**
- Helps protect against iron-deficiency anemia

*Source: CCP and WHO, 2011; Manchikanti, 2007.*
### Who can use DMPA or NET-EN

**WHO Category 1 and 2 examples**

<table>
<thead>
<tr>
<th>WHO Category</th>
<th>Conditions (selected examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>Age 18–45 years, nulliparous, smoking (any amount, any age), breastfeeding after 6 weeks postpartum, postabortion, acute or chronic hepatitis, STI, HIV/AIDS</td>
</tr>
<tr>
<td>Category 2</td>
<td>Age &lt;18 years or &gt;45, mild hypertension (BP &lt;159/99 mmHg), non-vascular diabetes, prolonged or heavy bleeding, history of DVT</td>
</tr>
</tbody>
</table>

*Source: WHO, 2010.*
### WHO Category 3 and 4 examples

<table>
<thead>
<tr>
<th>WHO Category</th>
<th>Conditions (selected examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 3</td>
<td>Breastfeeding before 6 weeks postpartum, severe hypertension (≥160/≥100 mmHg), unexplained vaginal bleeding (before evaluation) acute DVT/PE, complicated diabetes, severe liver disease</td>
</tr>
<tr>
<td>Category 4</td>
<td>Current breast cancer</td>
</tr>
</tbody>
</table>

*Source: WHO, 2010.*
When to initiate injectables

- Anytime a provider is reasonably certain a woman is not pregnant:
  - Started menstrual period in the past 7 days
  - Fully breastfeeding, no menses, baby is less than 6 months
  - No intercourse since last menses or delivery
  - Had a baby in the past 4 weeks
  - Had miscarriage or abortion in past 7 days
  - Is using reliable contraceptive method consistently, correctly

- Negative pregnancy test or pelvic exam (if none of the above apply)

When to initiate injectables

(continued)

- First 7 days of menstrual cycle, no backup method

- After day 7 of menstrual cycle, rule out pregnancy and use backup method for 7 days

- Postpartum:
  - Not breastfeeding: Immediately (Rule out pregnancy after 4 weeks postpartum)
  - Breastfeeding: At or after 6 weeks postpartum

When to initiate injectables

(continued)

- Postabortion or post-miscarriage: Immediately, without backup method

- Switching from a hormonal method: Immediately, if it was used consistently and correctly
  - Switching from another injectable: Can have new injectable when repeat injection would have been given; no backup method needed

- After using ECPs: At same time as ECPs, or within 7 days after start of menses, use backup method

Correcting misconceptions

Progestin-only injectables:

- Can stop monthly bleeding, but this is not harmful
  - Blood is not building up inside the woman
  - It is similar to not having menses during pregnancy
  - Usually not a sign of pregnancy

- Do not disrupt an existing pregnancy

- Do not make women infertile
### Management of progestin-only injectables side effects

#### Bleeding changes

**Counseling and reassurance are key**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
</table>
| Irregular bleeding (spotting or light bleeding at unexpected times that bothers the client) | • Reassure client that this is common and not harmful  
  • Recommend a 5-day course of mfenamic acid (500 mg 2 times per day after meals)  
  • Or 40 mg valdecoxib daily for 5 days, beginning when irregular bleeding starts |
| Amenorrhea                     | Reassure client: no medical treatment necessary                                    |

If side effects persist and are unacceptable to client, help her choose another method.

*Source: CCP and WHO, 2011.*
Management of progestin-only injectables side effects

Bleeding changes

*Counseling and reassurance are key*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
</table>
| Heavy or prolonged bleeding (twice as much as usual or longer than 8 days) | • Reassure client that this is common, not harmful  
• Recommend 5-day course of mefenamic acid (500 mg 2 times per day after meals); or 40 mg valdecoxib daily for 5 days; or COCs daily for 21 days; beginning when heavy bleeding starts  
• Suggest iron tablets and foods high in iron to prevent anemia  
• Consider underlying conditions if heavy bleeding continues or starts after several months  
• If bleeding becomes a health threat, or if the woman wants, help her choose another method |

Management of progestin-only injectables side effects

Other side effects

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common headaches, dizziness</td>
<td>Reassure and suggest painkillers; evaluate headaches that worsened after starting injectables. Dizziness: consider local remedies</td>
</tr>
<tr>
<td>Abdominal bloating/discomfort</td>
<td>Reassure; suggest local remedies. Refer for care if abdominal pain is severe.</td>
</tr>
<tr>
<td>Changes in mood or sex drive</td>
<td>Ask about changes in life that could affect mood or sex drive, including relationship changes. Give support as appropriate. For serious mood changes, refer for care.</td>
</tr>
<tr>
<td>Weight gain</td>
<td>Inform about healthy eating habits and exercise</td>
</tr>
</tbody>
</table>

DMPA Injection Schedule

- Injection every 13 weeks
- Can be up to 2 weeks early or 4 weeks late

Source: WHO, 2010
NET-EN Injection Schedule

- Injection every 8 weeks
- Can be up to 2 weeks early or 2 weeks late

Source: WHO, 2010
Combined Injectable Contraceptives
Combined injectables

Also known as monthly injectables

Two formulations available

1. Medroxyprogesterone acetate (MPA) 25mg + estradiol Cypionate 5 mg
   Cyclofem, cyclo-provera, Lunelle, Novafem, Feminena

2. Norethisterone enanthate (NET-EN) 50 mg 
   + estradiol valerate 5 mg
   Mesigyna, Norigynon
Combined injectables

- Function largely like COCs
- Work primarily by preventing ovulation
- Less than 1 pregnancy per 100 women using monthly injectables over the first year (5 per 10,000 women), among women who receive their injections on time
Characteristics of combined injectables

- Do not require daily action
- Can be used privately
- Injections can be stopped at any time
- Good for spacing births

- Slightly delayed return to fertility
- No protection against sexually transmitted infections or HIV
Combined injectables:
Differences from Progestin-only injectables

- Less progestin

- Contains an estrogen

- More regular bleeding, fewer bleeding disturbances. Amenorrhea possible

- Requires monthly (4-weekly) injections; can be up to 7 days early or late.
Combined injectables: Side effects

- Changes in bleeding patterns
  - Lighter bleeding, fewer days of bleeding
  - Irregular bleeding
  - Infrequent bleeding
  - Prolonged bleeding
  - Amenorrhea
- Weight gain
- Headaches
- Dizziness
- Breast tenderness
Combined injectables: Health risks and benefits

- Safe and suitable for nearly all women
- Long-term studies are limited
- Benefits and risks similar to those of COCs
  - Less effect on blood pressure, blood clotting, lipid metabolism, and liver function
Correcting misconceptions

Monthly injectables:
- Can stop monthly bleeding, but this is not harmful; blood does not build up inside the woman
- Are approved for marketing
- Do not make women infertile
- Do not cause early menopause
- Do not cause birth defects or multiple births
- Do not cause itching
- Do not change women's sexual behaviour
Progestin-Only Implants
What are implants?

- Progestin-filled rods that are inserted under the skin
  - Jadelle: 2-rod system, effective for 5 years
  - Sino-implant (II): 2-rod system, effective for 4 years (possibly 5)
  - Implanon: 1-rod system, effective for 3 to 5 years
  - Norplant: 6-capsule system, effective for 5 years (possibly 7); no longer manufactured but few women are still using it

- Long acting reversible contraception
Implants: Mechanism of action

Suppresses hormones responsible for ovulation

Thickens cervical mucus to block sperm

**Implants have no effect on an existing pregnancy.**
Implants: Characteristics

- Very safe and 99.95% effective
- Easy to use
- Fertility returns without delay when removed
- Can be used by breastfeeding women
- Offer health benefits
- Have side effects
- Require minor surgery to insert and remove
- Cannot be initiated and discontinued without provider’s help
- Provide no protection from STIs/HIV

Implants: Menstrual side effects

Many women experience changes in bleeding patterns, such as:

- Light bleeding/spotting
- Irregular bleeding
- Prolonged bleeding
- Infrequent bleeding
- Amenorrhea

*Bleeding changes usually diminish after the first year of implant use.*

Source: Shoupe, 1991; CCP and WHO, 2011; Mansour et al., 2008.
Menstrual bleeding patterns in users of two-rod implants

Data from Singapore study of 100 users:

<table>
<thead>
<tr>
<th>Bleeding Pattern</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>32.6%</td>
<td>69.4%</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>21.1%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Prolonged bleeding</td>
<td>12.6%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Frequent bleeding</td>
<td>5.3%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Infrequent bleeding</td>
<td>9.5%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Irregular bleeding</td>
<td>10.5%</td>
<td>12.9%</td>
</tr>
</tbody>
</table>

Nine women discontinued due to menstrual changes.

Source: Biswas et al., 1996.
Menstrual bleeding patterns in Implanon users

Data from 11 clinical trials; two years of use:

<table>
<thead>
<tr>
<th>Bleeding Irregularity</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amenorrhea</td>
<td>22.2%</td>
</tr>
<tr>
<td>Infrequent bleeding</td>
<td>33.6%</td>
</tr>
<tr>
<td>Prolonged bleeding</td>
<td>17.7%</td>
</tr>
<tr>
<td>Frequent bleeding</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

The discontinuation rate due to menstrual changes was 11.3%.

Source: Mansour et al., 2008.
Implants: Non-menstrual side effects

Some women may experience:

- Headaches
- Abdominal pain
- Acne (can worsen or improve)
- Weight change
- Breast tenderness
- Dizziness
- Mood changes
- Nausea

*There are no known health risks associated with implant use.*
No significant metabolic effects

Researchers found that Jadelle or Implanon use resulted in no significant changes in:

✓ Lipid metabolism
✓ Carbohydrate metabolism
✓ Liver function
✓ Blood pressure
✓ Blood clotting

Source: Dorflinger L. 2002.
Complications from implant use are uncommon or rare

- **Infection at insertion site**
  - If occurs, most likely within the first 2 months

- **Difficult removal**
  - Rare if inserted properly and removed by a trained provider

- **Expulsions**
  - Rare; most occur within the first 4 months

*Source: CCP and WHO, 2011.*
Implants: Health benefits

- Reduced risk of symptomatic pelvic inflammatory disease (PID)
- Reduced risk of iron-deficiency anemia
- Reduced risk of ectopic pregnancy
  - 6 per 100,000 in implant users
  - 650 per 100,000 in women using no contraception

### Who can initiate implant use

**WHO Category 1 and 2 examples**

**Implants are safe for nearly all women.**

<table>
<thead>
<tr>
<th>WHO Category</th>
<th>Conditions (selected examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>Adolescents, nulliparous, breastfeeding after 6 weeks postpartum, heavy smokers, complicated valvular heart disease, endometriosis, endometrial or ovarian cancer, thyroid disorders, STI, HIV/AIDS</td>
</tr>
<tr>
<td>Category 2</td>
<td><strong>Breastfeeding before 6 weeks postpartum</strong>, Blood pressure $\geq 160/100$, history of DVT/PE, diabetes with vascular complications, heavy or prolonged vaginal bleeding patterns, multiple risk factors for CVD, antiretroviral therapy</td>
</tr>
</tbody>
</table>

*Source: WHO, 2010.*
Who should not initiate implant use

WHO Category 3 and 4 examples

*who a small number of women may not be able to use implants.*

<table>
<thead>
<tr>
<th>WHO Category</th>
<th>Conditions (selected examples)</th>
</tr>
</thead>
</table>
| Category 3   | acute DVT/PE, unexplained vaginal bleeding, history of breast cancer, severe liver disease and most liver tumors, certain cases of systemic lupus  
Continuation only: ischemic heart disease, stroke, migraine with aura |
| Category 4   | Current breast cancer          |

When to initiate implant use

- Anytime a provider is reasonably certain a woman is not pregnant

- Pregnancy can be ruled out if any of these situations apply:
  - Is fully breastfeeding, has no menses, and baby is less than 6 months
  - Abstained from intercourse since last menses or delivery
  - Had a baby in the past 4 weeks
  - Started monthly bleeding within the past 7 days (5 days for Implanon)
  - Had a miscarriage or abortion in the past 7 days (5 days for Implanon)
  - Is using a reliable contraceptive method consistently and correctly

- If none of the above apply, pregnancy can be ruled out by pregnancy test, pelvic exam, or by waiting till next menses

When to initiate implant use

(continued)

- First 7 days of menstrual cycle (5 days for Implanon), no backup method needed
- After 7th day of menstrual cycle (5th for Implanon), rule out pregnancy and use backup method for 7 days
- Postpartum
  - Not breastfeeding: immediately (no need to rule out pregnancy until 4 weeks postpartum)
  - Breastfeeding: category 2 if less than 6 weeks post partum, category 1, for more than 6 weeks

When to initiate implant use

(continued)

- Postabortion or miscarriage: immediately; without backup

- Switching from a hormonal method: immediately if it was used consistently and correctly
  - Injectable users can have implants inserted within the reinjection window; without backup

- After using emergency contraceptive pills:
  - Insert within 7 days after start of next menstrual period (5 days for Implanon); provide with backup method during interim

### Counseling and reassurance are key.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
</table>
| Irregular bleeding | • Reassure the client that this is common and not harmful  
|              | • Recommend a 5-day course of ibuprofen (up to 800 mg 3 times per day for 5 days)  
|              | • If no relief, offer COCs for 3 weeks  
|              | • If bleeding is heavy, iron tablets may prevent anemia  |
| Amenorrhea   | Reassure the client: no medical treatment necessary  |

If side effects persist and are unacceptable to the client, help her choose another method.

*Source: CCP and WHO, 2011.*
### Management of implant side effects:

#### Non-menstrual problems

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common headaches</td>
<td>Reassure and suggest painkillers; evaluate headaches that worsened since implant initiation</td>
</tr>
<tr>
<td>Mild abdominal pain</td>
<td>Reassure; suggest painkillers; follow-up if needed</td>
</tr>
<tr>
<td>Breast tenderness</td>
<td>Recommend a supportive bra, compresses, or analgesics</td>
</tr>
<tr>
<td>Weight change</td>
<td>Inform about healthy eating habits and exercise</td>
</tr>
</tbody>
</table>

*Source: CCP and WHO, 2011.*
Jadelle: Discontinuation rates and reasons for discontinuation

Source: Sivin et al., 1998.
### Management of implant side effects

## Problems related to insertion

<table>
<thead>
<tr>
<th>Problem</th>
<th>Action/Management</th>
</tr>
</thead>
</table>
| Pain after insertion or removal  | • Check that the bandage or gauze is not too tight; replace bandage; avoid pressing on site  
• Give painkillers for a few days |
| Infection                        | • Clean the infected area  
• Give antibiotics for 7–10 days  
• Remove implants if no improvement |
| Abscess                          | • Clean, cut open, and drain the abscess  
• Treat the wound  
• Give antibiotics for 7–10 days  
• Remove implants if no improvement |

Correcting misconceptions

- Hormones do not remain in a woman’s body after implants are removed

- Absence of monthly bleeding due to implants is not harmful

- Implants:
  - Do not make women infertile
  - Do not move to other parts of the body
  - Significantly reduce a woman’s risk for ectopic pregnancy
Key counseling topics

- Explain the insertion and removal procedure
- Provide post-insertion instructions
- Explain the length of protection and when to return for removal or replacement
- Describe reasons to return for follow-up

Implant Reminder Card

| Client’s name: | __________________________ |
| Type of implant: | __________________________ |
| Date inserted: | __________________________ |
| Remove or replace by: Month: [ ] Year: [ ] |

If you have any problems or questions, go to: [name and location of facility]
Acknowledgments and references

- Main References:
  - Family Planning – A Global Handbook for Providers  
    (https://www.fphandbook.org/)

- Acknowledgements
  - Family Health International
  - Knowledge for Health
  - Institute of Reproductive Health
Medical eligibility criteria for contraceptive use (MEC)

**Purpose:** Who can safely use contraceptive methods, given health conditions

- Offers ≈ 2000 recommendations for 25 methods
  - pre-existing medical conditions
  - personal characteristics
  - certain health problem

- Developed through consensus driven process during 3 consultations
  - Systematic review of scientific evidence
  - Adhered to WHO procedures for guideline development

- Previous editions

Selected practices recommendation for contraceptive use (SPR)

**Purpose:** How to safely use contraceptive methods, once deemed to be medically appropriate

User-friendly presentation of information
- By contraceptive method, not by question
- Most effective methods presented first
- Topics listed sequentially according to clinical relevance
  - Method initiation, exams/tests, management of problems, follow-up


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