بسم الله الرحمن الرحيم

Family Planning

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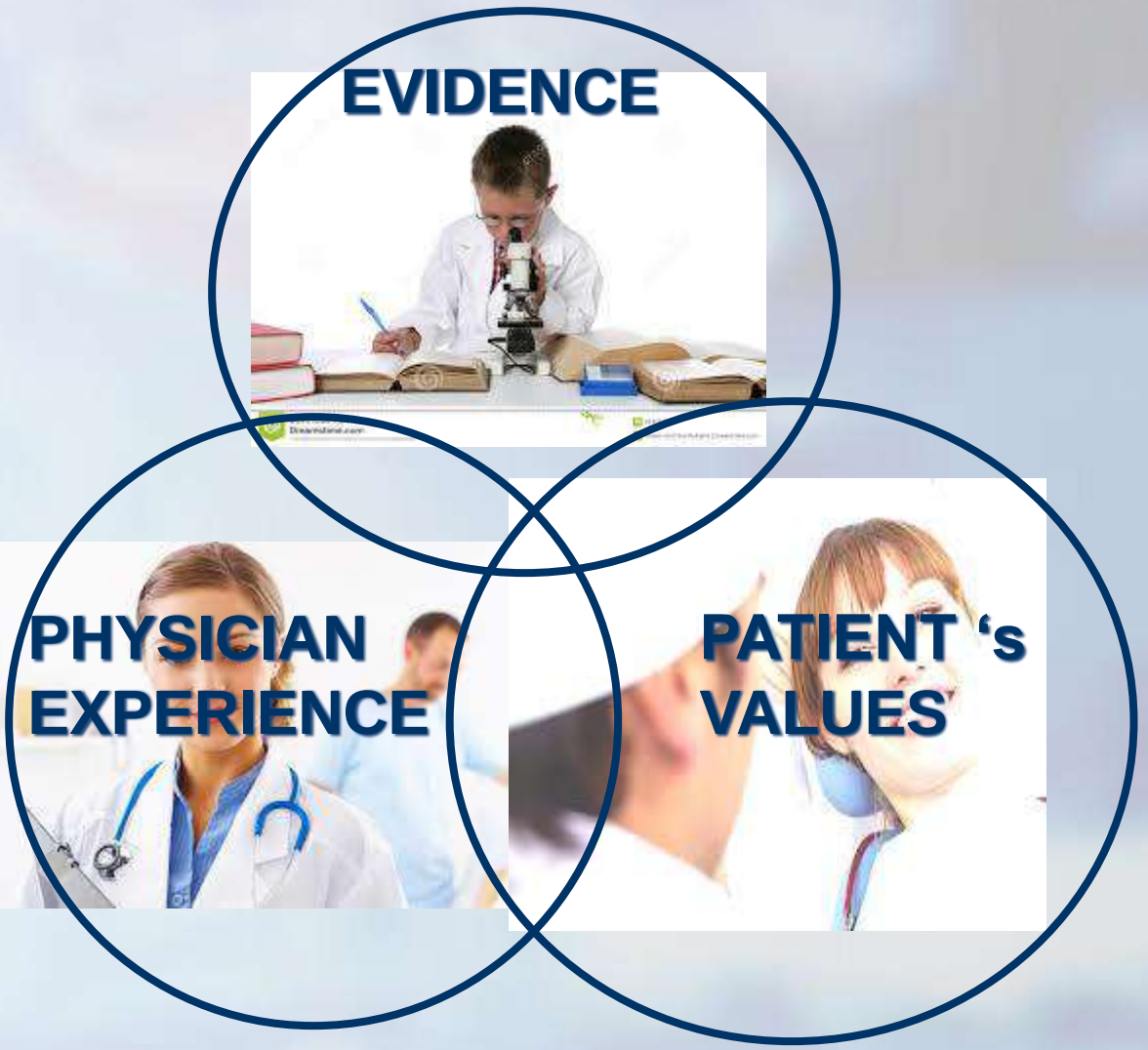
Remember
The total risks of birth control are much less than the total risks of a pregnancy!!

The Integrated Elements of EBM



The Pyramid of Evidence

1

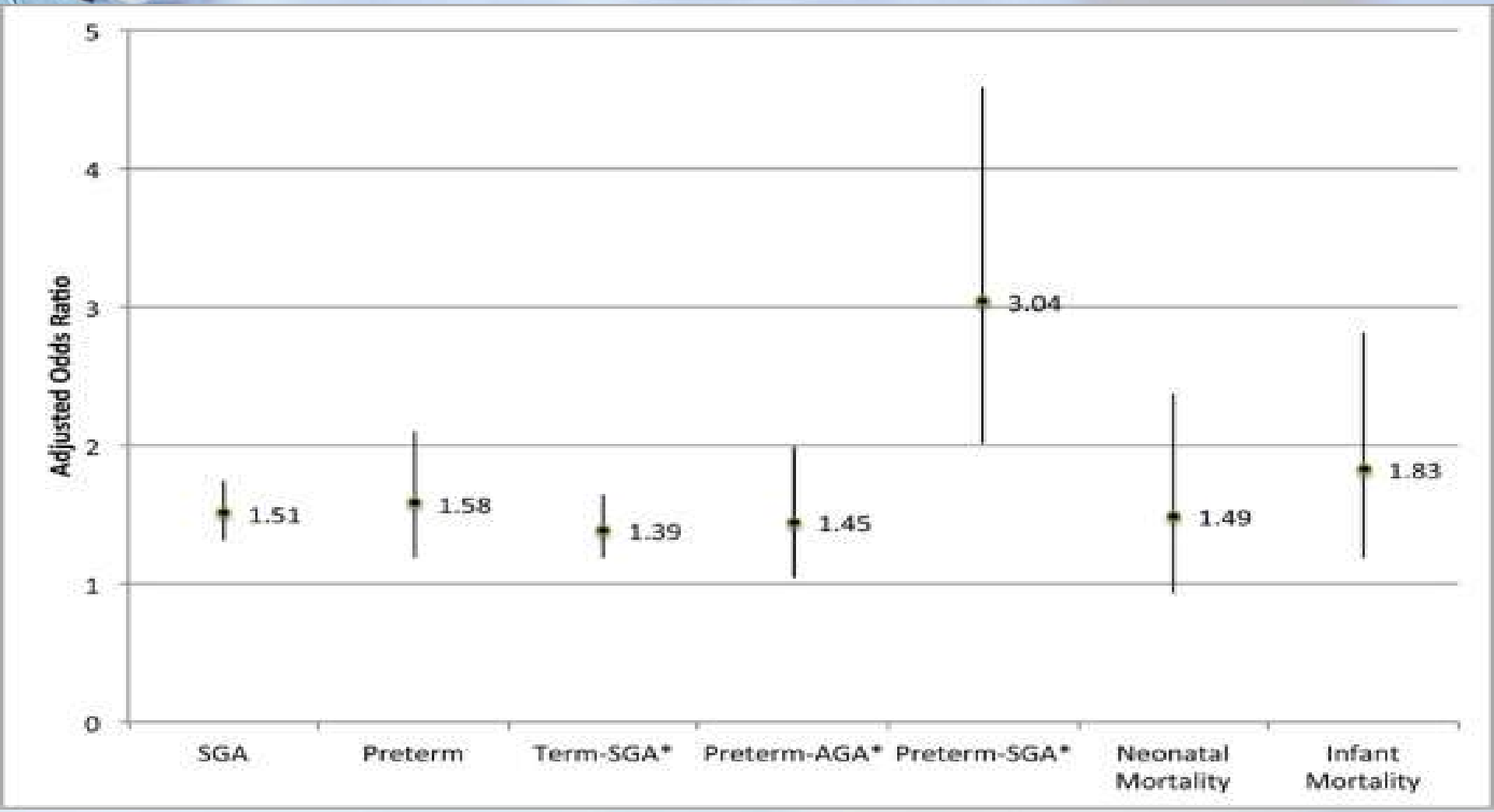
2

3

4

5

short inter pregnancy intervals have been associated with small-for-gestational-age (SGA), Pre Term birth, Infant Mortality, and malnutrition



Pregnancy spacing

- It is recommended that women wait 24 months between pregnancies in order to reduce morbidity risks to the mother, her subsequent pregnancies, and her children.
- Family planning options should be discussed antenatally, in a culturally appropriate manner on more than one occasion to ensure that immediate PPFP methods are a viable method of choice.
- Unmet need for FP is defined as the percentage of women of reproductive age, either married or in a union, who want to stop or delay getting pregnant for the next two years, but are not using any method of contraception, modern or traditional.
- An estimated 19% of pregnancies are unplanned

Types of Birth Control

- Hormonal
- Barrier
- IUD
- Methods based on information
- Permanent sterilization

WHO Medical Eligibility Criteria for Contraceptive Use. Categories applicable to women following an abortion (also miscarriage & ectopic pregnancy).

Post abortion	Cu-IUD	LNG-IUS	IMP	DMPA	POP	CHC
(a) First trimester	1	1	1	1	1	1
(b) Second trimester	2	2	1	1	1	1
(c) Presence of sepsis	4	4	1	1	1	1

WHO MEC 1 – No restrictions, 2 – Advantages outweigh risks, 3 – Risks outweigh the advantages, 4 – Unacceptable risk.

Laboratory Tests

- Pap smear
- Chlamydia and Gonorrhea screening when appropriate
- Pregnancy test if suspected pregnancy
- Lipid profile if family history of premature vascular event

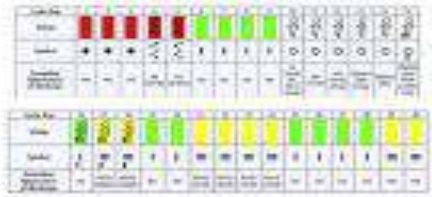
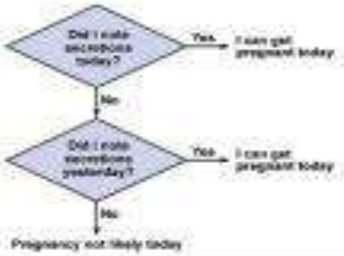
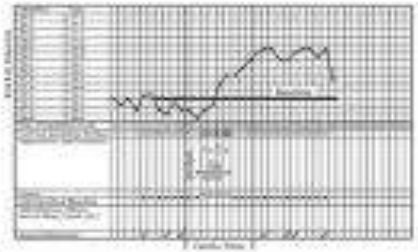
Natural Family planning methods

- They include:
  - Calendar (Rhythm) method:
    - 1. Depends on awareness of physiology of male and female reproductive tracts.
    - 2. Sperm viable in vagina for 2 to 7 days.
    - 3. Ovum lifespan 24 hr.
  - Cervical mucous method
  - Lactational amenorrhea method (LAM)
  - Withdrawal (Coitus interruption)

Fertility awareness-based methods FABMs

- FABMs are contraceptives where people use personal physiological data to determine their fertility and make decisions around sexual activity on fertile days.

Fertility awareness-based methods

Billings Ovulation Method Chart	Marquette Method Chart	TwoDay Method Decision Tool	Symptothermal Method Chart
			

Dot App	Natural Cycles App	Standard Days Method (CycleBeads App)
		

BARRIER methods

.Male condom
.Female condom
.Diaphragms
.Spermicides

- When used effectively barrier methods:
  - prevent pregnancy
  - Offer protection against sexually transmitted infections (STIs)
- Hence they aid in preserving life and retaining future reproductive potential.

MALE CONDOMS

failure rates

- perfect use 2% per year
- typical use 15%

Why do condoms fail?

- inconsistent use
- incorrect use
- occasionally condoms break- have low breakage and slippage rates estimated to occur in 1.6–3.6% of coital acts
- *30% of men aged 18-29 had at some time failed to disclose knowledge of a broken condom to their female sex partner.*

- WHO MEC guidelines

MALE CONDOMS

1. 95% latex (rubber), 5% polyurethane, or natural membrane (lamb's intestine does not block transmission of sexually transmitted infections).
2. Proper use: Place on an erect penis and leave ½-inch empty space at the tip of the condom; use with non–oil-based lubricants.
3. Effectiveness increased when used with spermicides.
4. Main advantage: Condoms are the only method shown to reduce HIV transmission

MALE CONDOMS

- Polyurethane condoms are thinner, looser, conduct body heat better and can be used with oil-based lubricants.
- A Cochrane review (2006) concluded that although they were associated with a higher rate of clinical breakage, they were still a feasible alternative for people with a latex allergy, although contraceptive efficacy required more research.

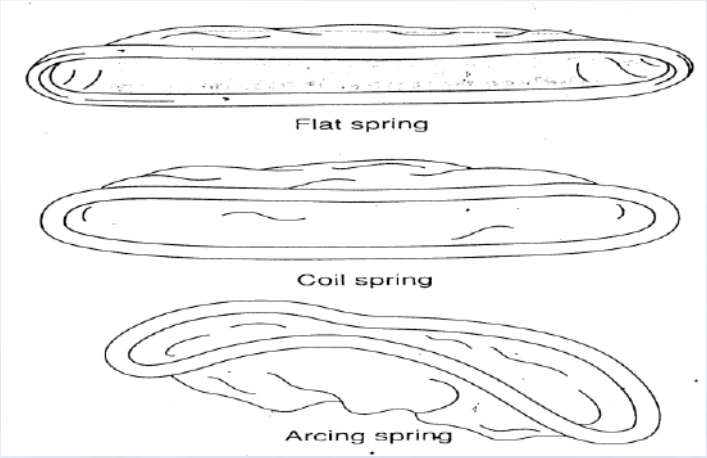
Female condom

- 1. Composed of polyurethane, with one end open and one end closed.
- 2. Proper use: Place closed end over cervix, open end hanging out of vagina to cover penis and scrotum.
- 3. Highly effective against HIV.

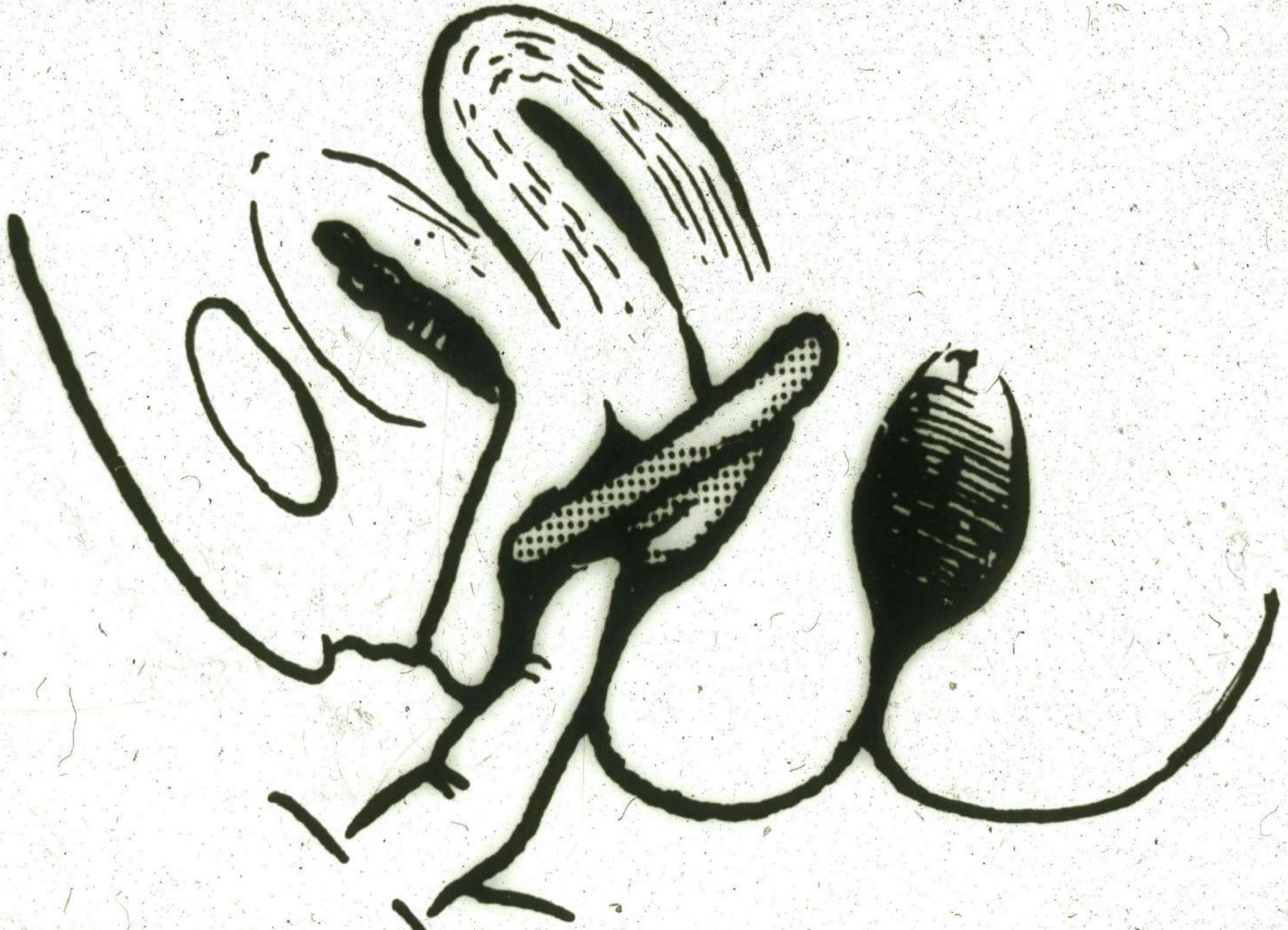
Spermicides

1. Types: Nonoxynol, octoxynol.
2. Forms: Jellies, creams, foams, suppositories, tablets, soluble films.
3. Proper use: Put in immediately before intercourse; may be used with other barrier methods.

Diaphragms and Caps



1. Must be fitted by practitioner, used with contraceptive gels, and refitted with weight gain or loss of 4.5 kg. Must also be refitted after pregnancy.
2. Diaphragm sizes: 50 to 105 mm; cervical cap sizes 26, 28, and 30 mm.
3. The correct fit allows the woman to remain ambulatory without feeling the device.
4. Proper use of diaphragm: Put in immediately before intercourse and keep in for 6 hr after intercourse; must not remain in the vagina for longer than 24 hr.
5. Proper use of cervical cap: Fit over the cervix exactly; must not remain in place for longer than 48 h



Douches

- No douche is effective
- sperm reach cervix within seconds (speed>18cm/hour) before even a spermicdal douche could have an effect

Coitus interruptus

- Advantages
  - Always available
  - No cost
- Disadvantages
  - Pelvic Congestion Syndrome
  - Can interfere with sexual pleasure
  - Relies on male control of ejaculation
  - High failure rates
    - Perfect use 4/100/yr
    - Typical use 27/100/yr

Hormonal Methods

- Oral Contraceptives (Birth Control Pill)
- Injections (Depo-Provera,)
- Implants (Implanon. Jedell)

Effectiveness

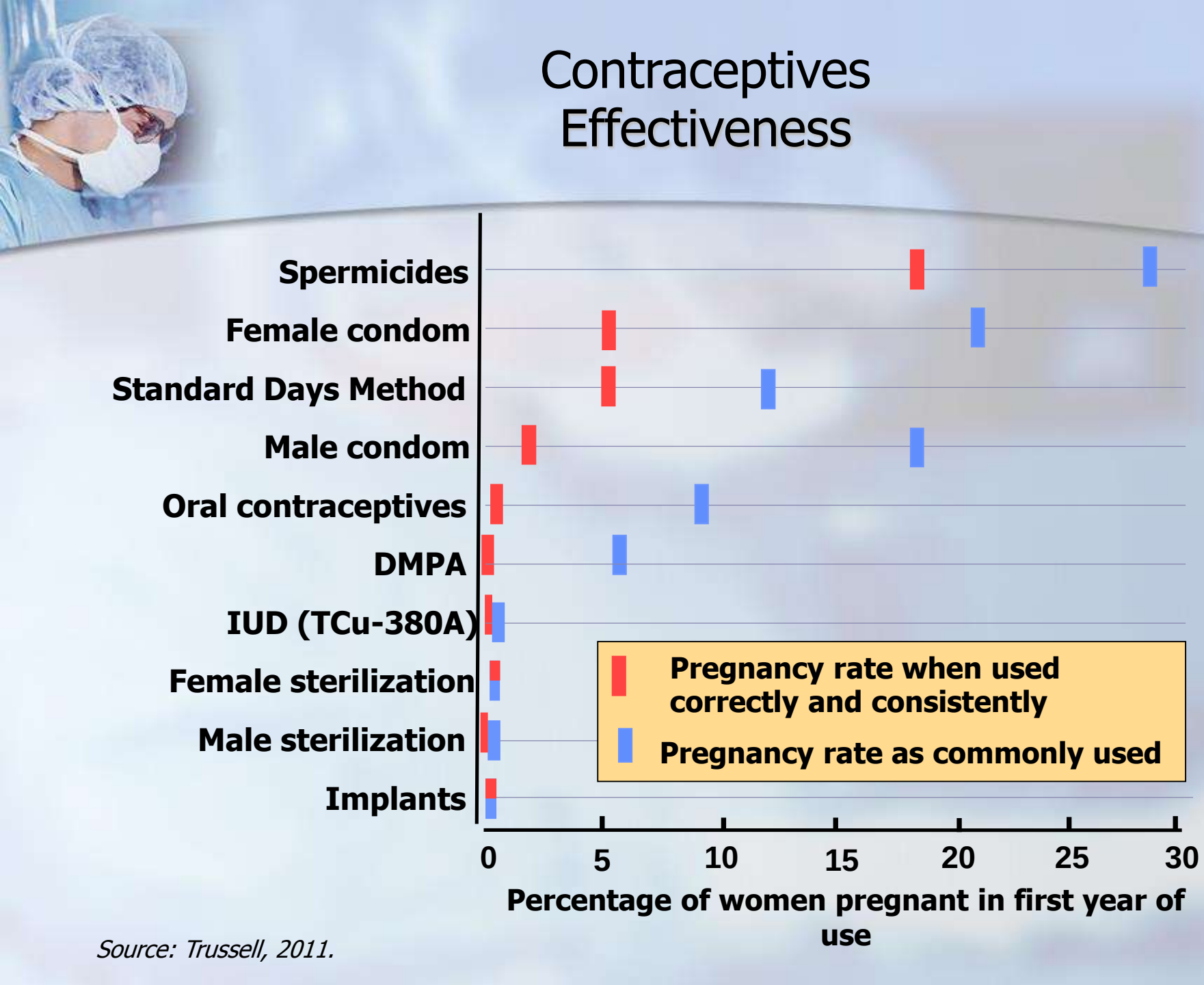
The effectiveness of a method is expressed as both the ***theoretical*** efficacy and the ***actual*** effectiveness

- ***Theoretical*** (perfect use) refers to the pregnancy rate among those who use the method **correctly AND** on every occasion
- ***Actual*** (typical use) effectiveness is usually lower due to inconsistent or incorrect use
  - Actual effectiveness is also influenced by frequency of intercourse, age, and regularity of menstrual cycles

Effectiveness

- Effectiveness is often quantitated by the **Pearl Index or life table technique (failure rate)**.
- Pearl Index is the number of **unintended pregnancies per hundred women per year** (i.e., the number of pregnancies in 1200 observed months of use).
- Method effectiveness vs use-effectiveness.
- The most effective methods in typical use are those that do not depend upon regular user action.

Contraceptives Effectiveness

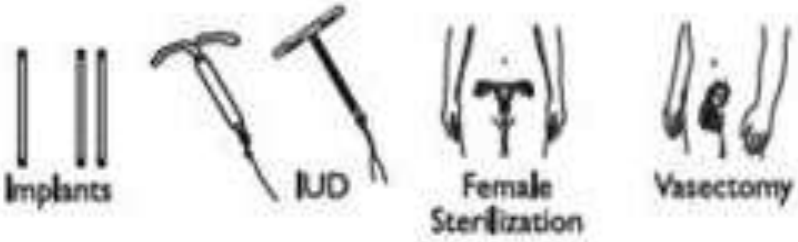


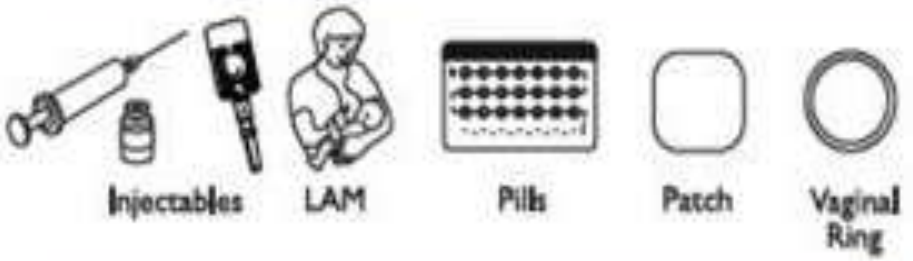
Source: Trussell, 2011.

Comparing Effectiveness of Family Planning Methods

More effective

Less than 1 pregnancy per 100 women in one year





Less effective

About 20 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 each day

Patch, ring: Keep in place, change on time

Male condoms, diaphragm: Use correctly every time you have sex

Fertility awareness methods: Abstain or use condoms on fertile days. Newer methods (Standard Days Method and TwoDay Method) may be easier to use.

Female condoms, withdrawal, spermicides: Use correctly every time you have sex

Contraceptive Method	When to Start	Additional Contraception (i.e., backup) Needed	Examinations or Tests Needed Before Initiation *
Copper-containing IUD	Anytime	Not needed	Bimanual examination and cervical inspection ‡
Levonorgestrel-releasing IUD	Anytime	If >7 days after menses started, use backup method or abstain for 7 days.	Bimanual examination and cervical inspection ‡
Implant	Anytime	If >5 days after menses started, use backup method or abstain for 7 days.	None
Injectable	Anytime	If >7 days after menses started, use backup method or abstain for 7 days.	None
Combined hormonal contraceptive	Anytime	If >5 days after menses started, use backup method or abstain for 7 days.	Blood pressure measurement
Progestin-only pill	Anytime	If >5 days after menses started, use backup method or abstain for 2 days.	None

Kinds of progestins

Generation	Kinds	Properties
First generation	**1. Norethindrone** 2. Norethindrone Acetate 3. Ethynodiol Diacetate	low progestational and slight estrogenic activity, tends to be less androgenic than the second-generation progestins
Second generation	**4. Levonorgestrel** 5. Norgestrel.	varying degrees of androgenic and estrogenic activities and high progestational effects
Third generation	**6. Desogestrel** **7. Norgestimate**	high progestational selectivity, minimizing androgenic effects and estrogenic activity, possibly higher risk of non-fatal venous thrombosis with desogestrel
Fourth generation	**8. drospirenone, cyproterone acetate**	the newest progestin, the only progestin derived from 17a-spirolactoneis, also has low androgenic activity, may cause higher potassium levels, so women with kidney, liver, or adrenal disease should not use it

New Progestogens

- Third generation pills first marketed in 1980s
- Less progestogenic
- Less side-effects such as acne and mood changes
- ? Increased risk of thromboembolism
- Newer progestogens are mainly derivatives of 17-hydroxy-progesterone ? better tolerated
- Drospirenone derivative of spironalactone- diuretic which passes through blood/brain barrier
- Not available on PBS - all more expensive than older pills

Low dose to very low dose oestrogen

- advantages in terms of safety
- reducing EE related adverse events
- reduction in side effects
- less effective cycle control
- reduction in non-contraceptive related health benefits?

Pharmacokinetics of COCP:

- rapid absorption from gut;
- peak serum levels 2 hrs; half-life 13-27 hrs;
- bioavailability affected by 1st pass metabolism (in gut wall & liver & protein binding (albumin/SHBG).
- EE sulphates deconjugated in intestine to be reactivated
- excreted in faeces or urine.
- EE increases prod of plasma proteins
- LNG anti-oestrogenic effect minimizes this.

Benefits of Combined Oral Contraceptives

- Highly effective contraception
- Safe for long-term use in women up to menopause except for smokers > 35 years
- Protection against endometrial and ovarian cancer 50-60% lasts 10-15 yrs after stopping
- Reduction in menstrual disorders – PMT, dysmenorrhoea, menorrhagia (40% reduction), anaemia
- Reduction in functional ovarian cysts, endometriosis
- Some protection against pelvic inflammatory disease

Non-contraceptive health benefits

possible protection against development of:

- ectopic pregnancy
- endometrial, ovarian, colon cancer
- acute episodes of PID
- uterine myomata; endometriosis
- infertility
- benign ovarian and breast tumours
- iron deficiency anaemia
- bone mineral density loss

Major Side Effects of Combined Pills

- Arterial Thrombosis
- Risk factors include age, hypertension, smoking, obesity, and strong family history of premature coronary artery disease

Major Side Effects of Combined Pills

- Use of The Combined Oral Contraceptive Pill increases the risk of developing breast cancer by R.R. 1.24
- Risk returns to normal by 10 years post use

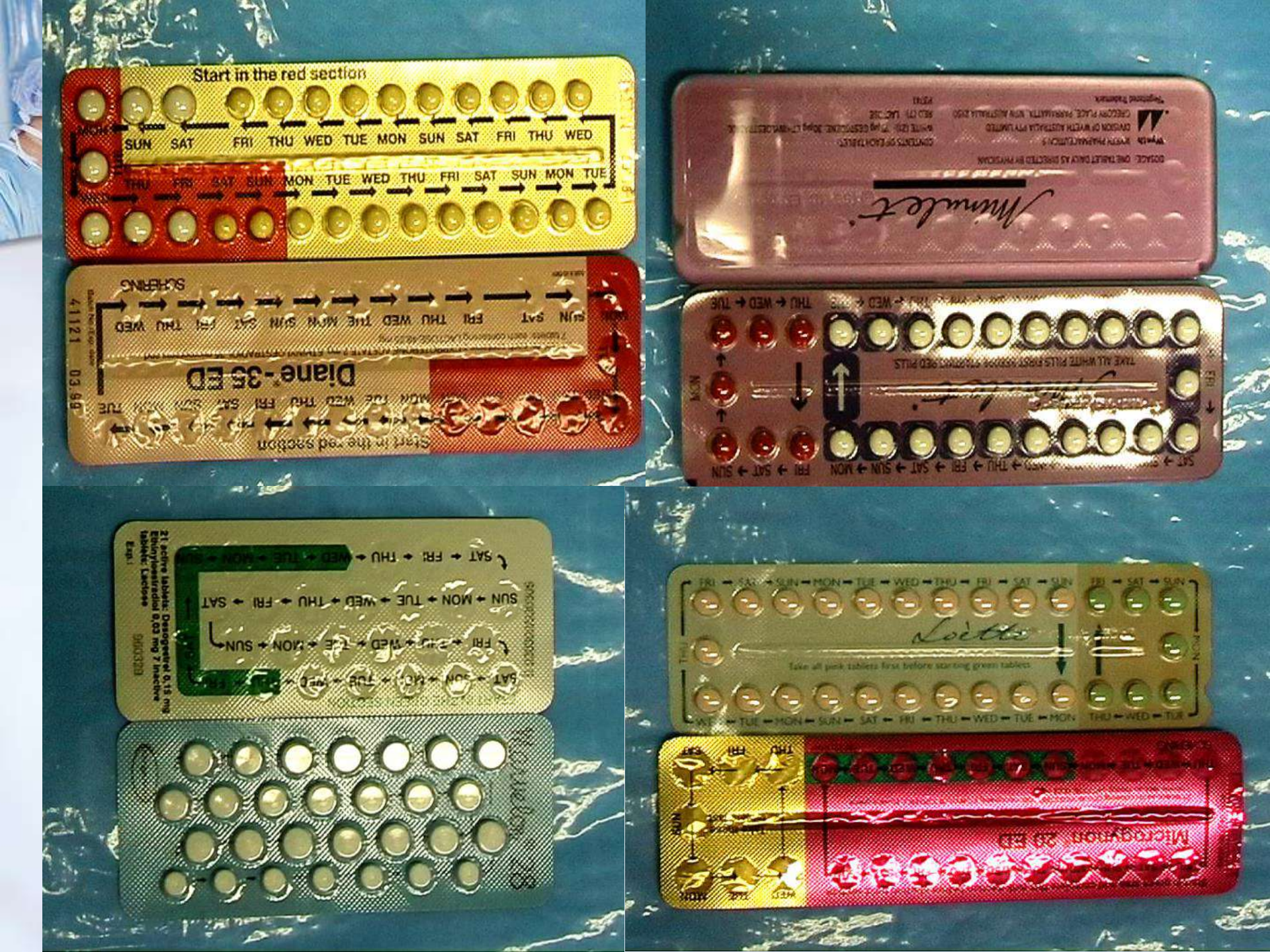
Mortality with COCPs and pregnancy (per 100,000)

Age	pregnancy	Combined pills	
		non-smoker	smoker
15-19	11.1	1.2	1.4
20-24	10.0	1.2	1.4
25-29	12.5	1.2	1.4
30-34	24.9	1.8	10.4
35-39	44.0	3.9	12.8
40-44	71.4	6.6	58.4

(Upton 1996)

Contraindications to Combined Pill

- History of thromboembolism
- History of cardiovascular disease / hypertension
- History of cerebrovascular accident
- Serious liver disease
- Malignancy of breast or genital tract
- Focal migraine
- Heavy smoking
- Malabsorption syndromes
- Pregnancy


Start in the red section
SUN SAT FRI THU WED TUE MON SUN SAT FRI THU WED
THU FRI SAT SUN MON TUE WED THU FRI SAT SUN MON TUE
Diane-35 ED
Minulet
Nordette
Microgynon 30 ED

Formulation OCPs

- **COCs:**
- **30 µg Ethinyl estradiol**
  - 150 µg levonorgestrel (Microgynon) *2rd. gen*.
  - 150 µg desogestrel (Marvelon) *3ed. gen*
  - 3000 µg drospirenone (Yasmin) *4th . gen*
- **35 µg Ethinyl estradiol**
  - 2000 µg cyproterone acetate (Diane 35)

- **POPs**
  - 350 µg norethindrone (Micronor)
  - 500 µg ethynodiol diacetate (Femulen)
  - 75 µg desogestrel (Cerazette)

- The decrease in both hormones has led to a reduction in both side effects and cardiovascular complications.

How does the pill work?

- Stops ovulation
- Thins uterine lining
- Thickens cervical mucus

Oral Contraceptive Pill Failure Rates

- Method failure < 1% (99% effective)

- Use failure (Typical use)

  3% clinical trials

  6% general use

  16 – 20% other studies

Major Enzyme - Inducing Drugs

- Older anti-epileptics except sodium valproate and clonazepam
- Rifampicin
- Griseofulvin
- Spironolactone

Management of Side Effects

Side effects	Management
Nausea	Reassurance, keep taking the pills, take the pill before bedtime or with meals
Mild headache	Reassurance, keep taking the pills, analgesia
Breast tenderness	Reassurance, keep taking the pills, supportive bra, analgesia, cold or hot compresses
Spotting	Reassurance, keep taking the pills exactly on time
Moodiness	Reassurance, keep taking the pills
Weight gain	Reassurance, keep taking the pills, monitor diet and exercise

Management Of Side Effects

1. **Irregular bleeding**:
    1. Take the pill each day at the same time.
    2. Mange missed pills properly
    3. Try NSAID
    4. If persists after 3 months try another formulation
    5. Consider other underlying conditions
2. **Amenorrhea**
    1. R/O pregnancy
    2. Reassurance
3. **Acne**

    Switch to another formulation

Warning Signs /ACHES

- **Severe abdominal pain** could be a sign of thrombosis of major intra-abdominal vessels such as the hepatic veins or mesenteric artery or veins.
- **Severe chest pain** could be a myocardial infarction or PE.
- **Severe calf pain** of one leg might indicate a DVT.
- **Severe headaches** may be the major warning sign that precedes a cerebrovascular accident (stroke).
- **Acute loss of vision in one eye** could be caused by retinal artery or vein thrombosis or hemorrhage. Loss of a field of vision may signify transient cerebral ischemia.
- **Jaundice** may be related to active hepatitis, gallbladder disease, or liver tumors (rare).

When Can COCs Be Started Postpartum?

- If **non breast feeding** she can start after the **4th week.**
- If **partially breast feeding** she can start at **6 weeks.**
- If **exclusively** breast feeding, she can start COCs at **6 months** postpartum.
  - **3 weeks, 6 weeks, 6 months**
- After 6-8 weeks postpartum, exclusively breastfeeding women desiring hormonal contraception should be encouraged to use POPs or Injectable or implants.
- If her monthly bleeding has not returned postpartum, she can start if she is sure she is not pregnant however need to use backup method for 7 days.

Post Abortion Initiation

May COCs be begun immediately post abortion?

- **Yes. COCs** are **appropriate for use immediately** after a first or second trimester abortion and should be initiated **within the first 7 days post abortion**

Rationale:

- **Ovulation returns almost immediately post abortion** within 3 weeks for first trimester abortion and within 4 weeks for second trimester abortion.

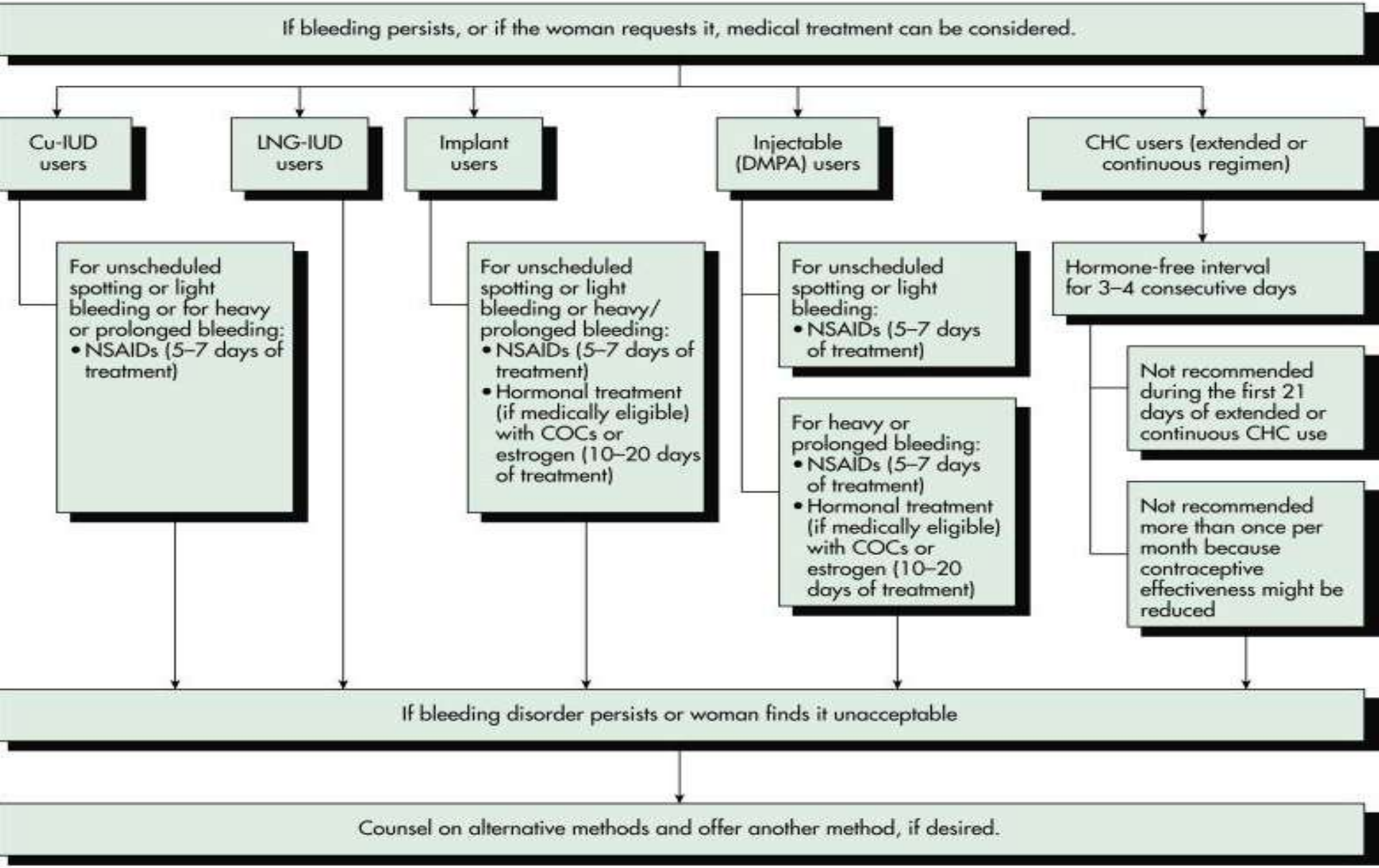
Is There a Minimum Age to Receive COCs or a Maximum Age?

- **COCs may be used at any age at which a woman is at risk of pregnancy** (i.e., past menarche and through menopause).
- **Women over 40 can take COCs**, provided other risk factors have been considered (e.g. smoking, high blood pressure, diabetes).

Rationale:

- **Cardiovascular risks from COC use are minimal in healthy, non-smoking, older women**.
- The risk of amenorrhea after discontinuing COCs is small and more common in women who had irregular menses prior to COC use. Women who have irregular menses are more likely to develop secondary amenorrhea whether they take COCs or not.

MANAGEMENT OF WOMEN WITH BLEEDING IRREGULARITIES WHILE USING CONTRACEPTION



Abbreviations: CHC = combined hormonal contraceptive; COC = combined oral contraceptive; Cu-IUD = copper-containing intrauterine device; DMPA = depot medroxyprogesterone acetate; LNG-IUD = levonorgestrel-releasing intrauterine device; NSAIDs = nonsteroidal antiinflammatory drugs.

* If clinically warranted, evaluate for underlying condition. Treat the condition or refer for care. Heavy or prolonged bleeding, either unscheduled or menstrual, is uncommon among LNG-IUD users and implant users.

Missed Pills - Incidence

- 28% of women took oral contraceptive pill according to instructions *(Finlay 1986)*
- 25% of women missed a pill in previous 3 months *(Finlay 1986)*
- Adolescents missed 2.7 pills per month

  (Goldstack 1987)
- Only 40% of women took pill everyday *(Oakley 1990)*
- Only 50% used a backup method if they forgot a pill

  (Oakley 1990)

Missed Pills –summary

	Missed 1-2	Missed 3 or more pills
First or second week	✓ Take one pill as soon as possible ✓ Continue taking one pill each day ✓ Have the usual seven day break.	✓ Take one pill as soon as possible ✓ Continue taking one pill each day. ✓ ✓ Have the usual seven day break. ✓ Use a backup method for 7 days.
Third week	✓ Take one pill as soon as possible ✓ Continue taking one pill each day ✓ Finish the pack and begin a new pack the next day (Omit hormone-free days).	✓ Take one pill as soon as possible ✓ Continue taking one pill each day ✓ Finish the pack and begin a new pack the next day (Omit hormone-free days). ✓ Use a backup method for 7 days.

Facts About COC and Cancer

Ovarian and endometrial cancers:

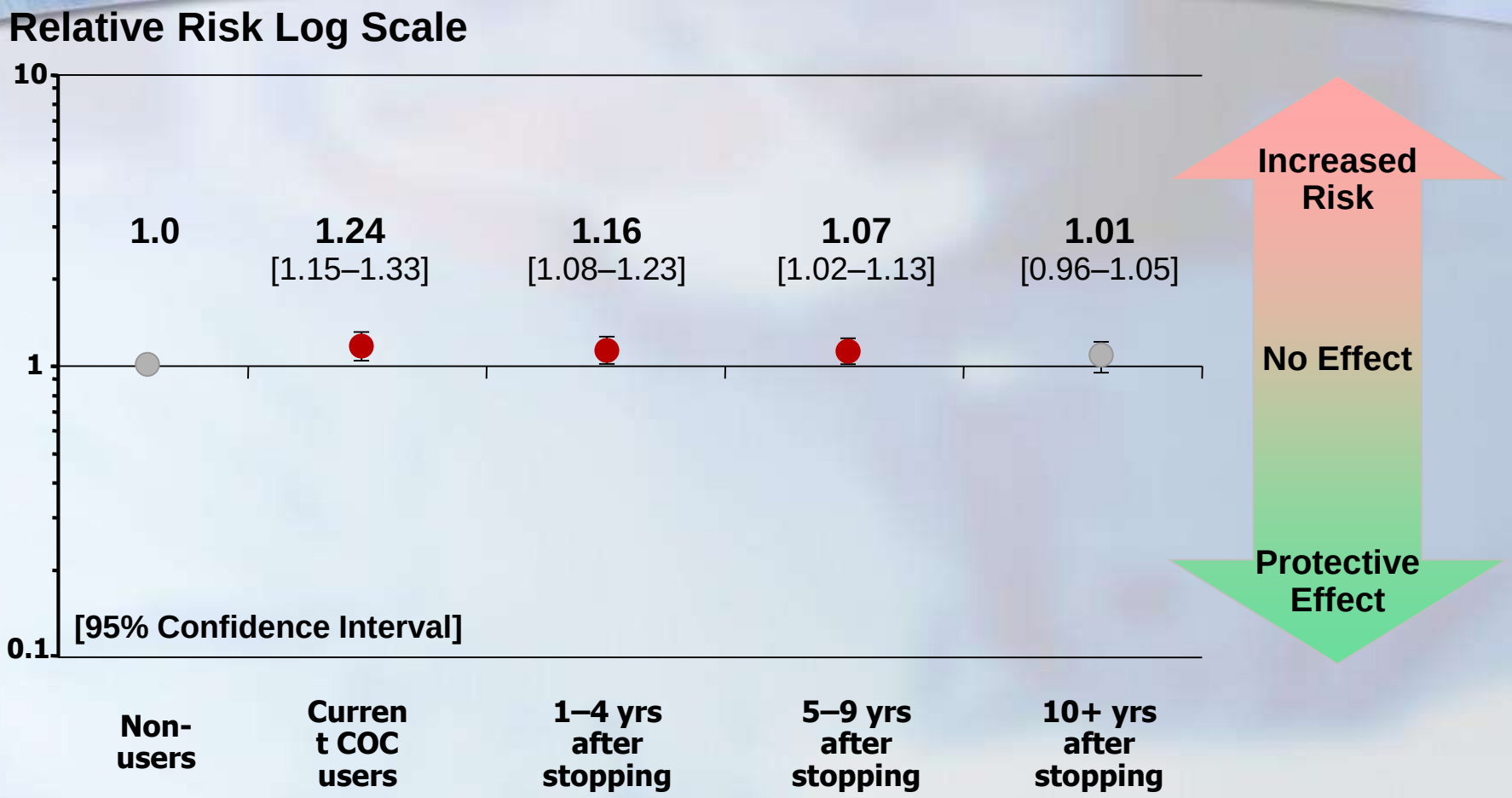
- COC s has protective effect.
- Use for **at least 12 months** reduces the risk of endometrial cancer by 50% with the greatest protection by use for more than 3 years.
- This protection persists for **20 or more years** after discontinuation and is greatest in women with high risk.
- Protection is seen with all monophasic formula.
- The risk of developing ovarian cancer is reduced by 40%
- This protective effect increases with duration of use and **20 or more years** after discontinuation

Facts About COC and Cancer

Breast cancer:

- Current and recent use of oral contraceptives may be associated with a slight increase of breast cancer.
- There is no effect of past use or duration of use on the risk of breast cancer.
- Women who have used COC more than 10 years ago are at the same risk of non users.
- When current or former user is diagnosed with breast cancer the cancer is usually less advanced than in non users.
- COC use does not increase the risk of breast cancer in women with positive family history.

Relative Risk for Breast Cancer among COC users and Non-users



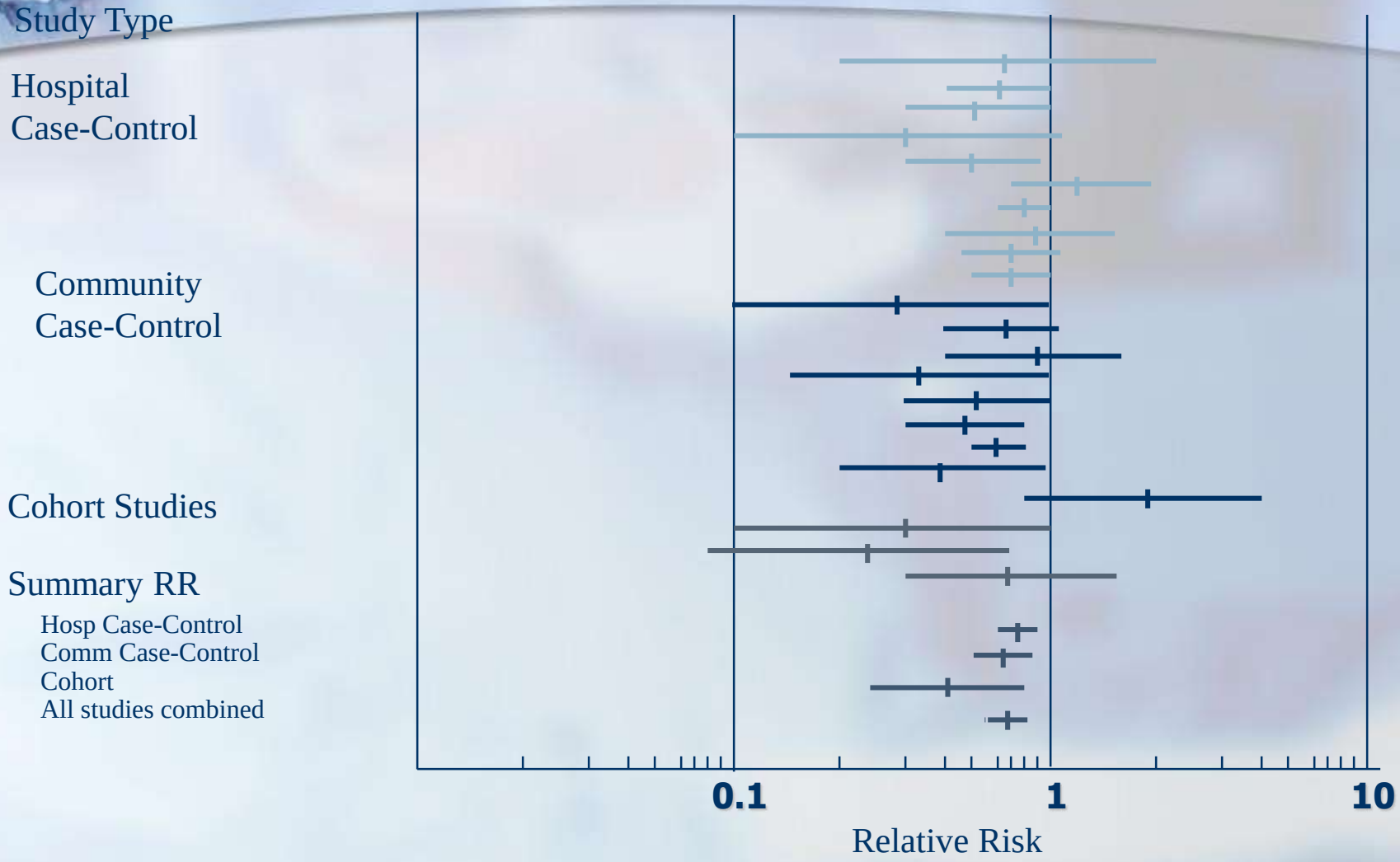
Source: Collaborative Group on Hormonal Factors in Breast Cancer, 1996; Milne, 2005; Silvera, 2005 .

Facts About COC and Cancer

Cancer of the cervix:

- Studies indicated that the risk for dysplasia and carcinoma in situ of the uterine cervix increases with the use of COC for more than one year.
- Invasive Cx cancer may be increased with long term use.
- Use of COC for 5 years or more appears to speed up the development of persistent HPV infection into cervical cancer.

Oral contraceptives and ovarian cancer

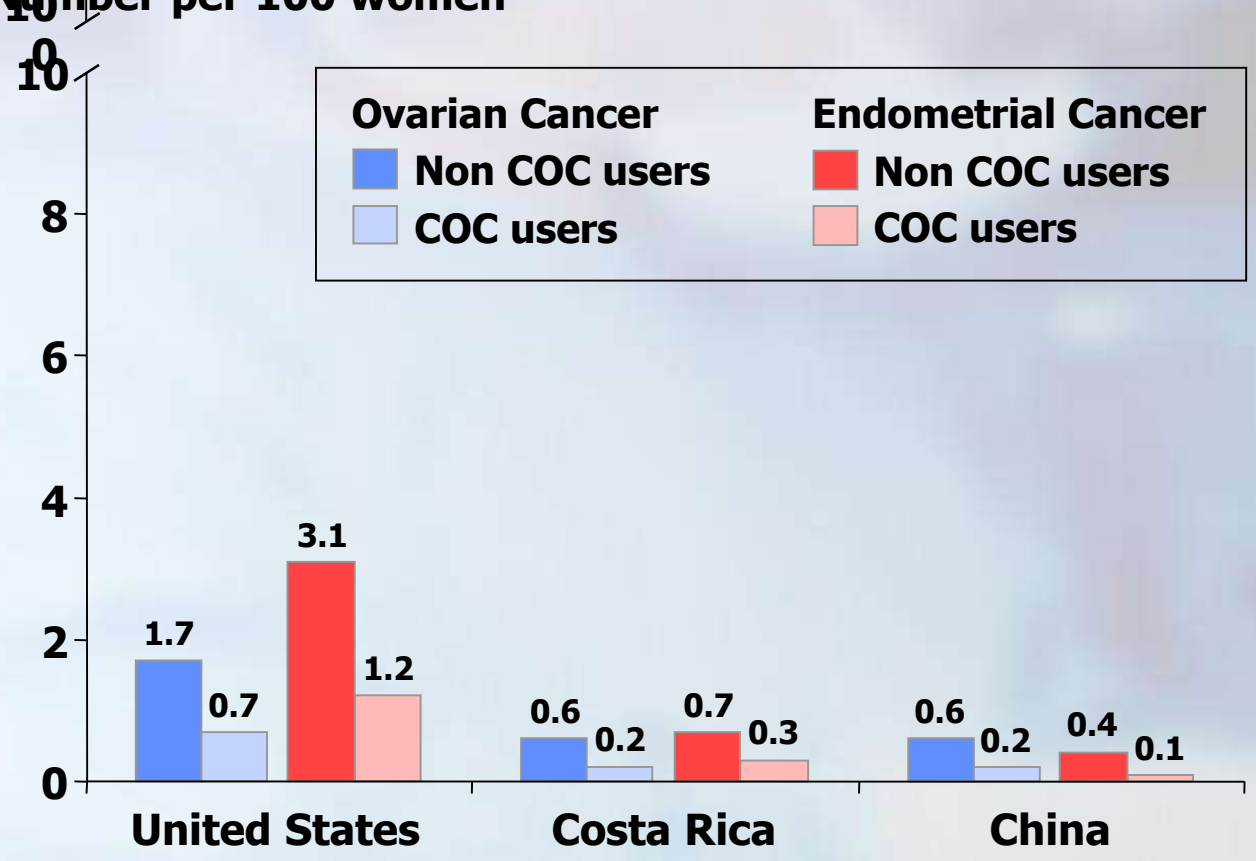


Oral contraceptive use and ovarian cancer. Obstet Gynecol 80: 708-714; Hankinson et al 1992

Protective Effect of COC Use on Ovarian and Endometrial Cancer

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

Source: Petitti and Porterfield, 1992; CASH Study 1987.

COCs and acute pelvic inflammatory disease

- Relative risks in COCP users:

  - against other contraceptive methods:
    RR = 0.2 - 0.8
  - against non-users:
    RR = 0.3 - 0.9

  (12 studies)

VTE and third generation COCs

- 4 studies in 1995 suggested doubling of OR for VTE with third generation progestogens
- critics suggested selection bias, well patient bias
- 2 studies which accounted for bias and confounders found no increased risk
- recent study still suggests doubling of risk compared to LNG pills-? Antioestrogen effect
- risk factors include thrombophilias, obesity, smoking, age

Oral contraceptives and the risk of venous thrombo-embolism:

- Reproductive age women no COCs
  - 4-5/10,000
- COC users
  - 9-10/10,000
- Pregnancy
  - 29/10,000
- Immediate post partum
  - ? 300-400/10,000
  - **SOGC clinical practice guideline. No. 252, December 2010**
  - **J.Obstet Gynecol Canada 2010 ..**

Progestogen Only Contraception
("Mini Pills")

Available Preparations:

Levonorgestrel 30 µg

Microlut

Microval

Norethisterone 350 µg

Micronor

Noriday

Summary and Recommendations for Progestin-Only Oral Contraceptive Use

1. Progestin-only contraception is an option for women in whom an estrogen-containing contraceptive is either contraindicated or causes additional health concerns.
2. Ovulation is not consistently suppressed; the main contraceptive actions of progestin-only oral contraception are effects on cervical mucus and the endometrium.
3. The typical user failure rate with progestin-only oral contraception is estimated to be >8%. Women choosing progestin-only oral contraception are often subfertile as a result of breastfeeding or older reproductive age, and so the failure rate in these populations may be lower than that in more fertile populations.
4. It is essential that the pill be taken at the same time each day to maximize contraceptive efficacy.
5. Menstrual irregularities are common in users of progestin-only oral contraception and represent the most frequent cause for contraceptive discontinuation.

Mode of Action

- Hostile Cervical Mucus
  - Reduction in sperm penetration and motility
  - Maximal effect 3 – 21 hours after ingestion
- Endometrial Effects
  - Endometrium unfavorable for implantation
- Ovarian Effects
  - Annovulation 10% cycles
  - Follicular activity – no ovulation 20% cycles
  - Defective luteal phase – ovulation 30% cycles
  - Normal ovulation 40% cycles
- Slows passage of ovum through fallopian tube

Efficacy of Progestogen Only Pills (POPs)

- 0.2 – 13.2
- Slightly higher failure rates than combined pill
- Lower failure rates in lactating women
- Failure rates decrease with the age of a woman as fertility decreases with age
- Failure rates higher in heavier women – 70kgs and over
- Failure often due to user error
- Severe diarrhoea and vomiting may effect absorption
- Drug interactions with most anti-convulsants, Rifampicin and Griseofulvin
- No proven interactions with antibiotics

Contraindications to POC Use

- Women using enzyme inducing drugs(except DMPA)
- Women with breast cancer
- Women with pre-existing abnormal vaginal bleeding

Side Effects of POC

- Menstrual cycle disturbances - frequent or irregular bleeding more common than ammenorrhoea
- Headache
- Breast tenderness
- Acne, weight gain - rare
- 10% pregnancies are ectopic - same incidence as non-contraceptive users
- Increase in functional ovarian cysts

Instructions for Use of POP

- Start on day 1 of menses
- 28 days of active pills - no pill free break
- Use 48 hours of backup method if starting after first day of menses
- Start 3 months post partum in women fully breast feeding provided no menses
- Start 3 weeks post partum in partial or non-breast feeding women
- Start immediately post-abortion
- Switching from POP to COC on first day of menses
- Take at same time each day
- Determine time of taking by usual time of intercousre

Cerazette

- Continuous progestogen only pill
- Desogestrel 65µg/day
- Inhibits ovulation
- Unpredictable cycle control as with all PO methods

Combined Oral contraceptives

Return to fertility

- Is there a decrease in conception rate after cessation of a combined oral contraceptive?
- Conclusion (Level 2 Evidence)
- Overall, the cumulative rate of pregnancy for fertile women previously using a combined oral contraceptive (COC) did not differ from that observed in fertile women who attempted to become pregnant without prior
- contraception.
- However, some studies suggest that time to pregnancy may be longer than other contraceptive methods in the first months after cessation.
- (Barnhart K, 2009; Cronin, M,2009)

Menstrual blood loss

- Is there a decrease in menstrual blood loss among women using COCP?
- Conclusion (Level of evidence 1)
- Cycle control was found to be good in four representative studies of the use of COCs and their effect on menstrual blood loss.

(Nelson A, 2013; Huber J, I,2000; Larsson, G, 1992)

Dysmenorrhea

- Are COCs users having a lower incidence and severity of dysmenorrhea symptoms than women who take no contraception ?
- Conclusion (Level of evidence 1)
- There is some evidence that women treated for dysmenorrhea with low dose
- COCs show an improvement in symptoms. However, evidence from
- comparative studies to support this assertion is limited.

(Wong C, 2009;Lindh I, 2012)

PMS and PMDD

- Does the use of combined oral contraceptives containing drospirenone helps treat women with premenstrual syndrome and premenstrual dysphoric disorder ?
- Conclusion (Level1)
- The progestin drospirenone plus 20mcg ethinyl estradiol appears to alleviate
- some of the symptoms for women suffering from premenstrual syndrome (PMS) and its more severe form, premenstrual dysphoric disorder (PMDD).

(Lopez LM,2009)

Ectopic pregnancy

- Does the use of COCs decreases the risk of an ectopic pregnancy ?
- Conclusion (Level 2)
- Based on the results of selected reviews of studies involving ectopic pregnancy, it appears that the use of combined oral contraceptives may have a protective effect against ectopic pregnancy.
- Furlong L. 2002; Mol BWJ, 1995)

Acne

- Are COCs safe and effective in the treatment of moderate facial acne?
- Conclusion (Level of evidence1)
- The COCs evaluated in placebo-controlled trials were effective in reducing inflammatory and non-inflammatory facial acne lesions.
- Few differences were found between COC types in their effectiveness for treating acne.

(Arowojulu AO, 2009)

Hirsutism

- Is there any association between use of low-dose COCs and decreased hirsutism?
- Conclusion (level 1)
- Low-dose combination oral contraceptives, especially those containing drospirenone or cyproterone acetate, have an antiandrogenic activity and reduce manifestations of hirsutism after 6 months of use.

(Oner G, 2007; Batukan C, 2007)

Weight gain

- Do women taking combination oral contraceptives have greater weight gain than women not taking them?
- Conclusion
- Available evidence is insufficient to determine the effect of combined oral contraceptives on weight gain. No large effect is evident as trials to evaluate the link between combined oral contraceptives and weight gain
- require a non-hormonal group to control for other factors including changes in weight over time. Few women discontinued use of their COC because of weight gain.
-

(Gallo MF, 2009;Foidart JM, 2013)

Myocardial infarction

- Is the use of combined oral contraceptives associated with an increased risk of a myocardial infarction?
- Conclusion (Level of evidence 2)
- The risk of myocardial infarction (MI) with current or past users of the lowest dose (20 mcg estrogen) was not increased though the strength of evidence for this is low. For low dose oral contraceptives (30-35 mcg estrogen), there is no increased risk.

(Urrutia RP, 2013)

Stroke

- Is there an association between use of a low dose (< 35 mcg EE) oral contraceptive and stroke?
- Conclusion (Level of evidence 2)
- Women who use a low dose oral contraceptive are, in the aggregate, at a slightly increased risk for ischemic stroke. Similar findings were not found for hemorrhagic stroke. Women who have risk factors for stroke and who use an oral contraceptive should be monitored. However, since stroke is rare in this age group (approximately 1 in 12,000), the absolute increase in risk is small.
-
- (Urrutia RP, 2013)

venous thromboembolism

- Is the use of combined oral contraceptives associated with an increased risk of venous thromboembolism?
- Conclusion (level 2)
- There is an increase in the risk of venous thromboembolism (VTE) among women who use COCs. However, the absolute risk is very small. No statistically significant differences among the different generations of progestins were noted.

(Urrutia RP, 2013)

-

Headache

- Is the use of combined oral contraceptives associated with the increased risk of headache?
- Conclusion (level 1)
- There is little evidence that combined oral contraceptives are associated with persistent headaches.
- Headaches that occur during early cycles of contraceptive use tend to improve or disappear with continued use.
- No evidence supports the clinical practice of switching combined oral contraceptives to treat headache.

(Loder EW, 2005)

Depression

- Is the use of combined oral contraceptives associated with the increased risk of depression?
- Conclusion (level 2)
- No association between COCs use and depressive symptoms in young women who use COCs for contraceptive reasons was found.
- Physicians prescribing COCs for contraception need not be concerned about their use and effect on depression.
- (Butcher B, 2012)

Benign breast disease

- Are women who are taking or have taken oral contraceptives at an increased risk for hospitalization due to benign breast disease?
- Conclusion (level 2)
- Combined oral contraceptives appear to reduce the risk of benign breast disease as measured by the hospitalization rate for this condition.
- For those diagnosed with fibroadenoma and chronic cystic disease, there is an apparent protective effect present for women using COCs regardless of the level of estrogen.

(Vessey M and Yeates D. 2007)

Endometrial cancer

- Are women who are taking or have taken oral contraceptives at an increased risk for endometrial cancer?
- Conclusion (level 2)
- This prospective study provides the best information to date on the relationship between COC use and endometrial cancer. It appears that combined oral contraceptives offer long-term protection against endometrial cancer.

(Vessey M, 2013)

Cervical cancer

- Are women who are taking or have taken oral contraceptives at an increased risk for cervical cancer?
- Conclusion (level 2)
- The relative risk of cervical cancer is increased in current users of oral contraceptives and declines after cessation of use.
- While duration of use is also positively associated with an increasing cervical cancer risk, similar to ever use, there is a gradual decrease in risk with time elapsed since last use.

(Vessey M, 2013)

Breast cancer

- Are women who are taking or have taken oral contraceptives at an increased risk for breast cancer?
- Conclusion (level 2)
- There have been many studies, both retrospective and prospective, exploring the link between COC use and breast cancer.
- This prospective study provides the best information to date on this relationship and it appears that there is a complete absence of any relationship between COC use and breast cancer.

(Vessey M, 2013)

Ovarian cancer

- Are women who are taking or have taken oral contraceptives at an increased risk for ovarian cancer?
- Conclusion
- Virtually every study in the world literature of COC use has shown a protective effect from acquiring ovarian cancer that lasts for more than 30 years after the cessation of COC use.

- (Vessey M, 2013)

LARC

- LARC- Long Acting Reversible Contraceptives
- LARC- Hormonal available in Jordan:
  - Implanon
  - DMPA- every three months
  - Mirena

What are LARCs

- Subdermal Implants- 3 years
- Intrauterine systems-5 years
- IUDs-12 years

Why long-acting methods?

- Failure rate of COC 2-6% in general use
- Unintended pregnancy rate is high with daily use methods
- Survey 2,000 women having abortions over 8 weeks
  - 17% using oral contraceptives at conception
  - 22% using condoms
- Less user involvement better compliance
- Steadier release rates
- Require lower doses for efficacy

Advantages

- Effective
- Safe
- Convenient
- Low maintenance
- Reversible
- High user satisfaction
- Suitable in lactation

Disadvantages of Long-Acting Methods

- require medical intervention for insertion and removal for most
- cost up front
- most are progestogen-only affecting cycle control
- require careful counselling prior to use
- newer methods combined contraceptive vaginal ring and patch are under control of woman but require more regular involvement of user

LARC

	LNG-IUS	Copper IUD	ENG implant	DMPA
Duration	5 years	10 years	3 years	3 months
Estrogen-free	+	+	+	+
Progestogen-free	–	+	–	–
Inhibits ovulation	–	–	+	+
Irregular bleeding	+/–	–	+	+/–
Heavy bleeding	–	+/–	–	–
Amenorrhea	+/–	–	–	+

Contraceptive Method	Approved label years of use	Main characteristics	Non-contraceptive benefits	Scientific publications on extended use (years)
TCu380A IUD	10	No hormonal, pain and bleeding disturbances are the main reasons for discontinuation Highly effective as emergency contraception	Reduction of cervical and endometrial cancer	12–15
LNG 52 mg IUS (Mirena, Liletta, Levosert, Avibella)	5	Hormonal, oestrogen free, bleeding disturbances and hormonal signs are the main reasons for discontinuation	Reduction of endometriosis-associated pain and dysmenorrhea, ovarian and endometrial cancer (Only for Mirena)	7–9 years
LNG 19.5 mg IUS (Kyleena)	5	Smaller device, hormonal, oestrogen free, bleeding disturbances and hormonal signs are the main reasons for discontinuation		

Contraceptive Method	Approved label years of use	Main characteristics	Non-contraceptive benefits	Scientific publications on extended use (years)
LNG 13.5 mg IUS (Jaydess, Skyla)	3	Smaller device, hormonal, oestrogen free, bleeding disturbances and hormonal signs are the main reasons for discontinuation		
LNG implant (Jadelle, Sino-Implant)	5	Hormonal, oestrogen free, bleeding disturbances and hormonal signs are the main reasons for discontinuation		
ENG implant (Implanon NXT)	3	Hormonal, bleeding disturbances and hormonal signs	Reduction of endometriosis-associated pain, dysmenorrhea	5 years

Implanon® (etonogestrel implant)

- Implanon® is a single 40-mm × 2-mm rod implant containing a progestin hormone and is inserted under the skin of a woman's arm
- Contains 68 mg of etonogestrel
  - active metabolite of desogestrel
  - releases 60 mcg daily
- Approved for use in the United States and Europe
- Intended to provide contraception for up to three years after insertion

Etonogestrel implant insertion and removal

- Inserted as outpatient
  - average time 0.5 minutes
  - mandatory training by manufacturer
  - timing of insertion
    - Insert any time in cycle; rule out pregnancy
    - Back up method if not within the 1st 5 days of menses
- Average removal time 3.5 minutes

(Funk et al. Contraception 2005).

Implanon®

Mechanism of Action

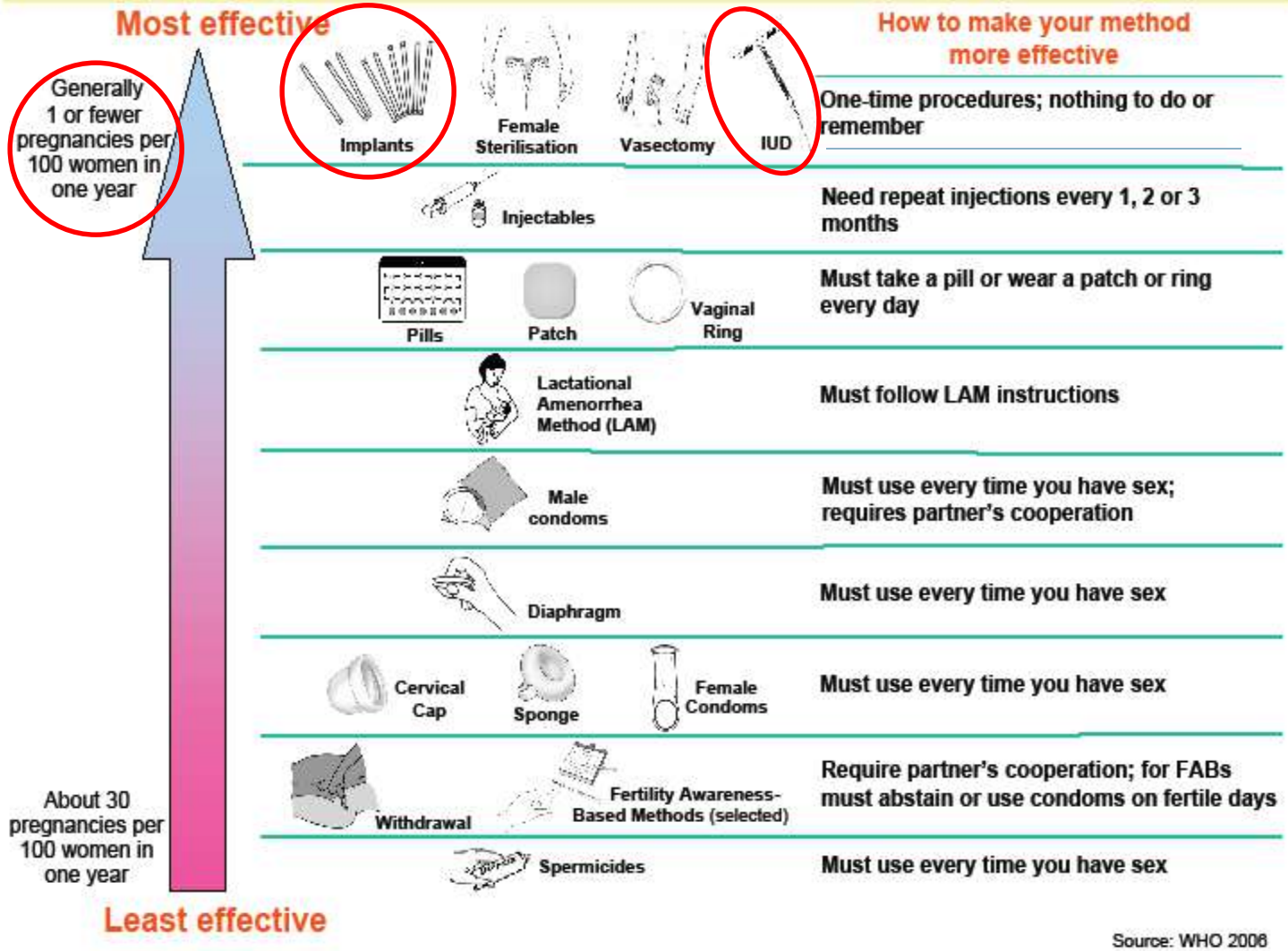
- The ENG implant prevents the luteinising hormone (LH) surge so that follicular development occurs without ovulation.
- Small studies have shown that the single rod implant suppresses ovulation in almost all users throughout the three years after insertion.

(Croxatto and Makarainen 1998)

EFFECTIVENESS

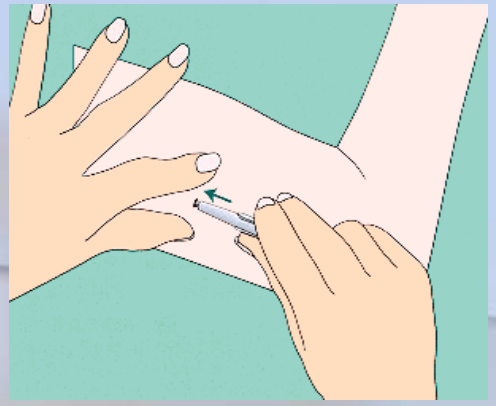
- Pearl Index is the most common technique used in clinical trials for reporting the effectiveness of a birth control method.
- PI: the number of failures of a contraceptive method per 100 woman years of exposure.
- Highly effective – important feature for women
- Pregnancy rates indistinguishable from other highly effective methods such as intrauterine devices and combined oral contraceptives
- No increased risk of pregnancy associated with up to three years of use.

Comparing Typical Effectiveness of Contraceptive Methods



Source: WHO 2006

Etonogestrel Implant Efficacy



- More effective than permanent sterilization
  - 0.05% typical (and perfect-use) failure
- No pregnancies during 1200 woman-years of exposure (Pearl Index, 0; 95% CI 0.0-0.2)
- American study of 330 women aged 18-40
  - no pregnancies in 2 years

Croxatto HB. Eur J Contracept Reprod Health Care. 2000;5(suppl 2):21
Funk et al. Contraception 2005;71:319
Trussell. Contraception 2011;83:397

WHO CAN'T USE IMPLANON®

WHO GUIDELINES*

- Breastfeeding women less than 6 weeks postpartum
- Women with current deep venous thrombosis or pulmonary embolism
- Unexplained, unevaluated abnormal vaginal bleeding
- Current breast cancer
- Past breast cancer without evidence of current disease within five years

* World Health Organization. Medical eligibility criteria for contraceptive use. Geneva:WHO, 2004.

Impact of Implanon on QoL

- The implant seems to have a positive impact on QoL **after the first three months** of therapy.
- Users showed an **improved** general health status and physical role status.
- The implant did not show negative effects on libido and on sexual function.
- In the first three months of treatment, users experienced a temporary reduction of vitality, mental health, social functioning and emotional role functioning, which seem to disappear after six months of therapy.

(Costantino Di Carlo,2013)

Jordanian Women's Experience with Etonogestrel Subdermal Contraceptive Implant in Two Family Planning Clinics

Moamar Al-Jefout, MD, PhD [1], Nedal Nawaiseh, MD, PhD [2], Sahar Tashman, MD [3], Rawan Ryalat [1], MD, Sara Zaitoun [1], MD, Louai Al-Alawi [1], MD, Wassem Tabaza [1], MD*

Abstract

Objective: Etonogestrel subdermal hormonal contraceptive implant (Implanon®) is a popular and effective contraceptive. However, some users discontinue it for a variety of reasons

ACCEPTABILITY

- Method is highly efficacious (Evidence grade: Level 1)
- Cochrane review: No pregnancies occurring in any of the trials during 26,972 and 28,108 women months of follow up respectively. (Power J, 2012, Al-Jefout 2016)
- Discreet. In most users, the rods are not visible under the skin
- Ease of use: no attention is required of user until time of removal. This often leads to high continuation rates.
- Contains no estrogen.

SAFETY: PREGNANCY OUTCOME
Ectopic Pregnancy

- Data are sparse, but like all contraceptives, the absolute number of ectopic pregnancies are reduced.
- A pregnancy that occurs in a woman using Implanon may be more likely to be ectopic than a pregnancy occurring in a woman using no contraception
- Only case studies or Level 4 studies are available, but if a pregnancy occurs, an ectopic pregnancy should be ruled out.

(Mansour M, 2005;Panti S,2006;Henderson P, 2007;Olowu O, 2011;Bouquier J, 2012)

SAFETY: RETURN TO FERTILITY

- Rapid return to fertility as measured by a return to normal menstrual cycles or ovulation
- Evidence Grade: Level 2

  (Affandi B, 1999; Croxatto HB,1995; Funk S, 2005)

- In clinical trials with Implanon, the etonogestrel levels in blood decreased below sensitivity of the assay by one week after removal of the implant.
- In addition, pregnancies were observed to occur as early as 7 to 14 days after removal.
- Therefore, a woman should re-start contraception immediately after removal of the implant if continued contraceptive protection is desired

Bleeding problems in women with Implanon

- **Unacceptable bleeding:** as prolonged and/or frequent bleeding, judged by the woman, and "persistent" bleeding to be prolonged and/or frequent bleeding for more that 6 months.
- Amenorrhea: No bleeding and/or spotting in 90 days-22.2%
- Infrequent bleeding: Less than three bleeding and/or spotting episodes in 90 days (excluding amenorrhea)-33.6%
- Frequent: More than 5 bleeding and/or spotting episodes in 90 days- 6.7%
- Prolonged bleeding: > 8 days- 17.7%
- Initial studies suggested that the bleeding pattern experienced by ENG implant users would improve with time

  (Mansour D, 2008)
- High discontinuation rates among Arabs

(Moamar Al-Jefout: Jordanian Women's Experience with Etonogestrel Subdermal Contraceptive Implant in Two Family Planning Clinics, 2016)

The mechanism behind bleeding disturbances among Implanon users

- E2 Fluctuation
- Unstable endometrium
- Fragile endometrial surface vessels
- A range of endometrial cellular and molecular disturbances:
  - disturbed angiogenesis,
  - increased spontaneous tissue breakdown
  - or defective repair of endometrium

Patient’s counseling

What to do when facing bleeding problems?

- What are the woman's main concerns?
- Ask about her bleeding pattern prior to having the ENG implant fitted
- Ask the user to describe the number of days each month she bleeds plus the number of episodes.
- Does the bleeding or pain occur during or after sex or is it associated with abdominal pain or urinary symptoms?
- When was the implant fitted? Is the implant palpable? Is there any risk of pregnancy?
- Have any other drugs or medication been taken, e.g., antiepileptic drugs?
- Does she smoke and, if so, how many?
- Is the user at risk of an STI?
- When was her last cervical screening test?

Intrauterine devices

Mechanism of Action: Copper IUD

Copper-releasing IUD :

380 mm^2 copper exposed on plastic T base →

- Copper is toxic to ova and sperm. Hence, the primary action of Cu-IUDs is inhibition of fertilization.
- Interferes with sperm motility.
- Causes spermicidal foreign-body reaction.
- Alters uterine environment, "hostile" to sperm.
- In addition, the endometrial inflammatory reaction inhibits implantation.
- As pregnancy does not begin until implantation, IUDs do not work by causing an abortion

Timing of IUD Insertion

- All IUDs can be inserted at any point in menstrual cycle.
- Copper IUD can be used for emergency contraception within 5-7 days of unprotected sex-with nearly 100% efficacy.

Follow-up

1,3,6,12 month after the IUD insertion, to make sure it is in place.
Once a year.

Useful life

The copper IUD is approved for use for up to 10 years.

Absolute contraindications to IUD use WHO/UKMEC Category 4

- Pregnancy
- Undiagnosed, suspicious vaginal bleeding
- Cervical or endometrial cancer awaiting treatment
- Endometrial cancer
- Distortion of the uterine cavity
- Current cervicitis or pelvic infection
- For LNG-IUDs, breast cancer diagnosed within the last 5 years

Pelvic inflammatory Disease

- **IUDs do not cause PID**
- Increased risk of PID in first 20 days post insertion:
- Rate 9/1000 insertions
- PID in IUD users related to exposure to STIs
- STI screen at time of insertion

  If positive treat without removing IUD

Meirik O. Contraception. 2007 Jun;75(6 Suppl):S41-7.

-

Intrauterine Pregnancy

IUD in situ

- miscarriage 50 - 75%
- septic 2nd trimester abortion
- prematurity 10 - 13%
- antepartum haemorrhage
- no teratogenicity

IUD removed

- miscarriage 17 - 30%
- no ↑ prematurity
- otherwise normal pregnancy

Complications

- Perforation
  - The rate of uterine perforation at 7 years is low, up to 2 per 1000 insertions, with all IUDs, Cu-IUIs or the IUS.
- Expulsion
  - Around one in 20 IUDs and IUSs are expelled and, as this is most common in the first 3 months, women should be encouraged to check the threads especially after heavy menses. Early expulsions with the frameless intrauterine implant are common; however, this may be related to the experience of the health professional who fitted the device.

Complications

- Ectopic pregnancy
  - The absolute risk of ectopic with intrauterine methods is low (around 0.02 per 100 woman years), 20 times less than for women using no contraception.
  - When an intrauterine method fails the chances of the pregnancy being ectopic are 10%. Because of the potential seriousness of this, a pregnancy with an IUD *in situ* is 'an ectopic until proved otherwise'.
  - A previous history of an ectopic pregnancy is not a contraindication to their use, although an IUS may be preferred to a Cu-IUD as the former inhibits sperm transport through the cervical mucus and so should be more effective at preventing fertilization.

Mirena - LNG Releasing IUS

- Silastic backbone with sleeve of levonorgestrel
- column of LNG within a rate-limiting membrane
- 46mg LNG released at rate of 20µg/24 hours
- reduces to 15 µg/24 hours after 5 years
- Blood levels 4-13% of pill levels
- LNG-IUS works by releasing progesterone onto the endometrium, which prevents implantation.
- In addition, within 1 month of insertion, the endometrium atrophies and sperm penetration through the cervical mucus is reduced.
  - of reduced menstruation.
  - lowered risk of pelvic inflammatory disease (PID), as pathogens as well as sperm are less likely to ascend into the uterus. Around 80% of women continue to ovulate with the LNG-IUS

Mirena

LNG releasing intrauterine system

- lifespan 5 years
- appears to be effective for 7 years
- annual pregnancy rate 0. 1/100wy
- cumulative pregnancy rate after 5 years 1.1%
- rapid return of fertility after removal
- cost $250-$350
- In Australia subsidised through the pharmaceutical benefits scheme (PBS)

Mirena - Mode of Action

- causes thickening of the cervical mucous and impedes sperm transport through cervix, uterus and fallopian tubes
- LNG inhibits proliferation of endometrium
- maximal endometrial atrophy change at 3 months maintained
- uterine environment hostile to sperm and sperm migration
- production of an immunoglobulin by endometrium which inhibits sperm penetration of ovum
- some inhibition of ovulation in 1st year of use
  - (5-15% depends on serum levels of LNG)
- no effect on ovulation in majority of women

Timing of insertion Mirena

- Cycle day 1-7 - immediate cover
- After Day 7 (pregnancy excluded)
  - back up contraception for 7 days, including if changing from copper IUD
  - continue pill for 7days
- Immediately post first trimester TOP
- 6 weeks post-partum
- NOT FOR POST-COITAL USE

Mirena bleeding patterns

- erratic bleeding/spotting especially in first 3 months
- decreased blood loss over 6 months
- infrequent bleeding in approx. 50% by 9 months
- amenorrhoea in

  11-16% women at 9 months

  25% at 5 years

  77% scanty bleeding

Mirena Side effects

- expulsion rate 4.5/100 WY
- PID risk lower than with copper devices
- ectopic pregnancy 0.2-0.3/1000/yr
- functional follicular cysts 12%
- acne -1.5 - 3.5 %
- breast tenderness -1 - 3 %
- mood changes - 0.3-2.5 %
- Lower abdominal pain 3-10 %
- headaches in 3%

Mirena IUS

- Contraception
- Heavy menstrual bleeding
- HRT for endometrial protection
- Control of endometriosis and associated pain
- Combined with Implanon for severe intractable symptoms of endometriosis

Bednarek PH, Jensen JT. Int J Womens Health. 2010 1:45–58 **Al-Jefout M**, Palmer J, Fraser IS.Aust N Z J Obstet Gynaecol. 2007 47(3):247-9.

Nuva Ring

Vaginal Ring

- A soft, flexible vaginal ring, which is about 2 inches in diameter, delivers low doses of estrogen and progestin into the body.
- This helps prevent pregnancy by suppressing ovulation and thickening the cervical mucus, which helps block sperm from entering the uterus. The ring is inserted into the vagina and left for 3 weeks. It is then removed for 1 week, during which a woman menstruates, and a new ring is inserted after the 1-week "break."
- The vaginal ring is at least 98 percent effective with perfect use, which refers to always correct and consistent use.

Depo provera Injectable

Depo-Provera

- Birth control shot given once every three months to prevent pregnancy
- 99.7% effective preventing pregnancy
- No daily pills to remember

SIDE EFFECTS

- Extremely irregular menstrual bleeding and spotting for 3-6 months!
- NO PERIOD ☺ after 3-6 months
- Weight change
- Breast tenderness
- Mood change

*NOT EVERY WOMAN HAS SIDE-EFFECTS!

Skin Patch


Ortho Evra
(norelgestromin/ethinyl estradiol)
transdermal system

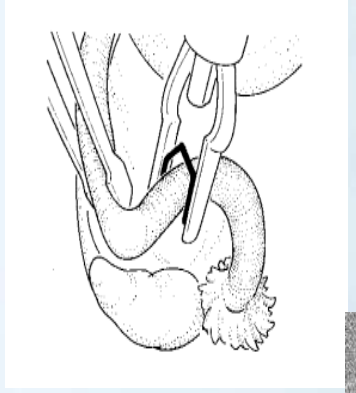
Contraceptive skin patch

- The Contraceptive Patch looks like a square band-aid. It is applied to the abdomen, buttocks, upper arm, or upper torso. The Patch is changed each week for a schedule of 3 weeks on and 1 week off.
- It works by slowly releasing a combination of estrogen and progestin hormones through the skin. These hormones prevent ovulation (release of an egg from the ovary) and thicken the cervical mucus, creating a barrier to prevent sperm from entering the uterus.
- **Effectiveness:** When used correctly, it's about 99% effective as birth control except for women weighing 198 pounds or more when it is only about 92% effective.

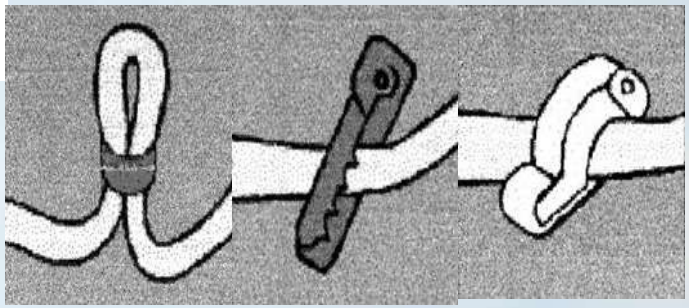
Surgical family planning methods (Sterilization)

- Vasectomy (Male)
- Tubal ligation (Female)
  - Minilaprotomy
  - Laparoscopy
- Essure

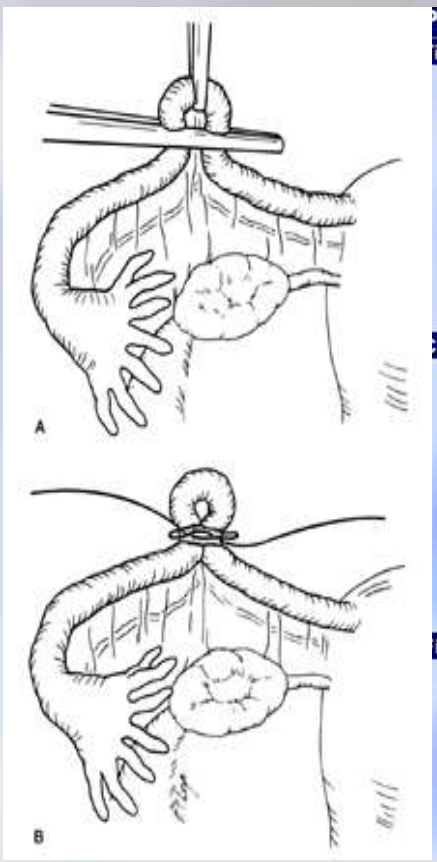
Tubal sterilization operation



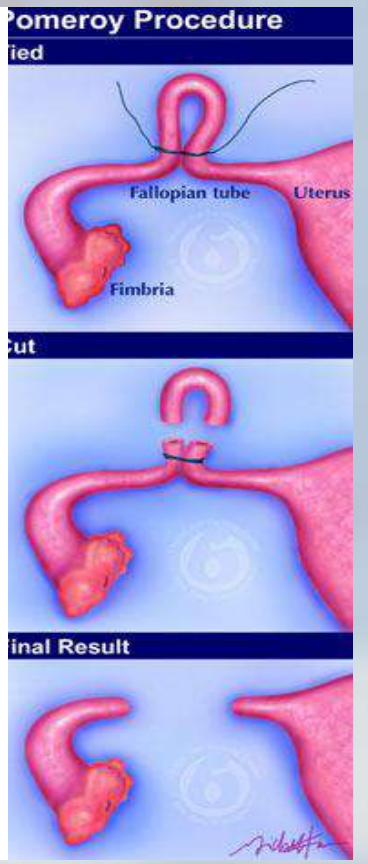
- Ligation method
  - The proximal embedding method
  - Madlener
  - Pomeroy
  - Falope ring
  - Hulka clip



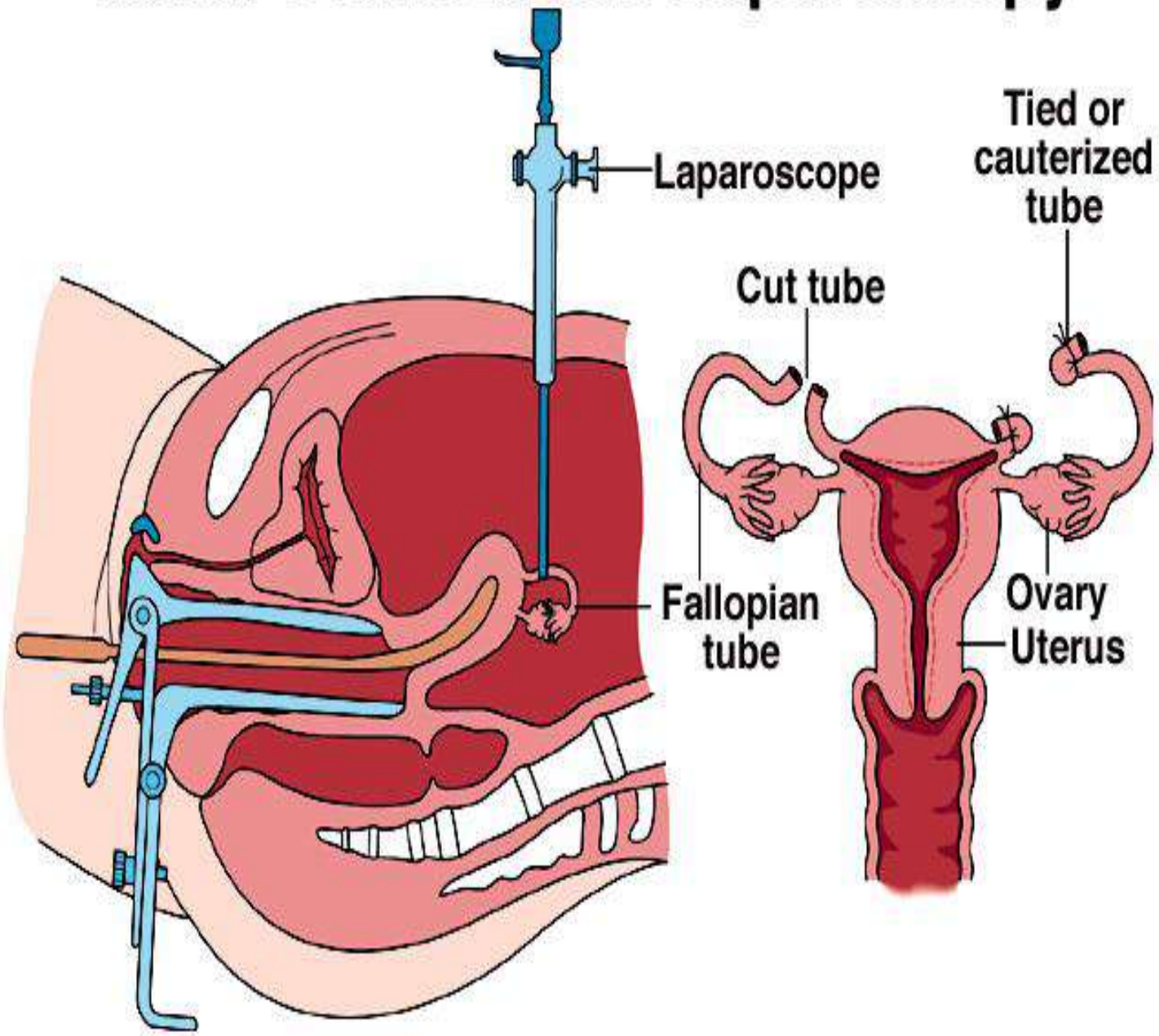
Madlener



Pomeroy



Tubal Sterilization Laparoscopy



Male sterilization

- Vasectomy:-division or occlusion of the vas deference prevents the passage of sperms.
- Methods:-
  1- Clips
  2- Diathermy
  3- Percutaneous injection of sclerosing agents or occlusive substances.
- The success of the procedure is verified by the absence of sperms from two consecutive samples of ejaculate collected at least 4 weeks apart.
- Contraception must be continued until confirmation of two negative semen results has been achieved and this is achieved after 16-18 weeks of performing the vasectomy.

What is emergency contraception (for married couples)?

- Emergency contraception is a way to prevent pregnancy if:
  - Intercourse without using birth control
  - Birth control method failed
    - forgot to take pill or get shot
    - the condom broke or came off
    - diaphragm slipped

What are the types of emergency contraception?

- Pills
  - work well
  - don't cost a lot
  - usually easy to get
- Copper intrauterine device (IUD).
  - works very well
  - but it has to be inserted by a doctor

How does it work?

- **Emergency contraception pills work by**
  - preventing ovulation
  - preventing fertilization
  - preventing implantation
  - 96% effective
- **The copper IUD may work by**
  - killing sperm
  - preventing fertilization
  - preventing implantation
  - 99% effective

Does it cause side effects?

- Emergency contraception may cause some side effects
  - spotting or mild symptoms like those of birth control pills
  - nausea or vomiting
  - sore breasts, fatigue, headache, belly pain, or dizziness
  - An IUD may cause cramping and bleeding during the first few days after insertion

Emergency Contraceptive Pills: Combined

- Regular birth control pills- Yuzpe method
- Contain estrogen and progestin- at least 1mg of LNG and 200mcg of ethinyl estradiol
- 2 doses of 2, 4, or 5 pills, depending on brand
- First dose within 72(120) hours
  - Second dose 12 hours later(or maybe not!)
- Side effects: nausea (50%) and vomiting (20%)

Emergency Contraceptive Pills: Progestin-only

- Birth control pills containing only progestin
- 2 doses of 1 Plan B tablet or 2 Ovrette tablets
- First dose within 72 (120) hours after intercourse
- Second dose 12 hours later (or maybe not!)
- Less nausea/vomiting than combined ECPs

Emergency Copper IUD Insertion

- Copper-T IUD (ParaGard)
- Insertion within 5 days after unprotected intercourse
- Much more effective than ECPs
- Not recommended for women at risk of sexually transmitted infections (STIs)

Hypertension

- A systematic review found that hypertensive COC users were at higher risk for stroke and acute myocardial infarction than COC users without hypertension.
- Even low-dose CHCs should only be used if no other method is suitable, even for women with controlled hypertension.
- All progestogen-only methods and the copper IUD are appropriate.
- In women whose blood pressure reading is greater than 160/100 mmHg, all oestrogen-containing contraceptives are absolutely contraindicated, but progestogen-only methods, with the exception of DMPA, are suitable.
- For women with gestational hypertension whose blood pressure has returned to normal all low-dose CHCs are suitable provided that blood pressure is monitored.

CVD

- Progestogen-only methods including the POP, progestogen implants and the LNG-releasing IUS are appropriate, but not POIs.
- The copper-bearing IUD is a suitable highly effective method for women in whom pregnancy can increase cardiovascular risk.
- Women with either current or a history of ischaemic heart disease (IHD) should not use CHCs but are suitable for all progestogen-only methods apart from DMPA.
- For women with valvular disease complicated by pulmonary hypertension, atrial fibrillation or a history of subacute bacterial endocarditis, progestogen-only methods apart from the LNG IUS are methods of choice.

Venous thrombo-embolic (VTE) disease

- For women with a current venous thrombo-embolic (VTE) disease, the POP, copper IUD or barrier methods are suitable.
- Women with VTE established on anticoagulant therapy can use any method other than CHCs.
- Women with a history of VTE can use any progestogen-only method or a copper IUD.
- Women with known thrombophilias should use either progestogen-only methods or a copper IUD but having a first-degree relative with a history of VTE does not necessarily restrict choice

Cerebrovascular accident

- Women with a history of stroke can use any progestogen-only method except injectables but should stop the method if a stroke occurs during use.
- Continue if a stroke occurs during LNG IUS use.
- The copper IUD is a suitable option

Epilepsy

- Adequate contraceptive cover for women with epilepsy is important because of the increased risks of pregnancy.
- For women who suffer from epilepsy, any method is suitable provided they are not using one of the anti-convulsant drugs that cause enzyme induction in the liver, which may affect efficacy of hormonal methods including all progestogen-only methods, apart from DMPA and LNG IUS

DM

- In cases where there is evidence of vascular or neurological involvement or in long-standing diabetes (>20 years) the POP, progestogen implant, and LNG IUS are appropriate

Breast disease

- For women with benign breast disease, there are no restrictions to contraceptive choice.
- In women with current or past breast cancer all hormonal methods are contraindicated.
- For these women, a copper IUD is ideal.
- In women on tamoxifen following breast cancer, the LNG IUS has been used to protect the endometrium.
- There is some evidence of increased recurrence rates in women diagnosed with breast cancer while using the LNG IUS who continued use but not in those who had the IUS inserted after diagnosis.
- Women with a family history of breast cancer or known carriers of the BRAC1/2 mutations do not appear to have an increase in risk if they use CHCs

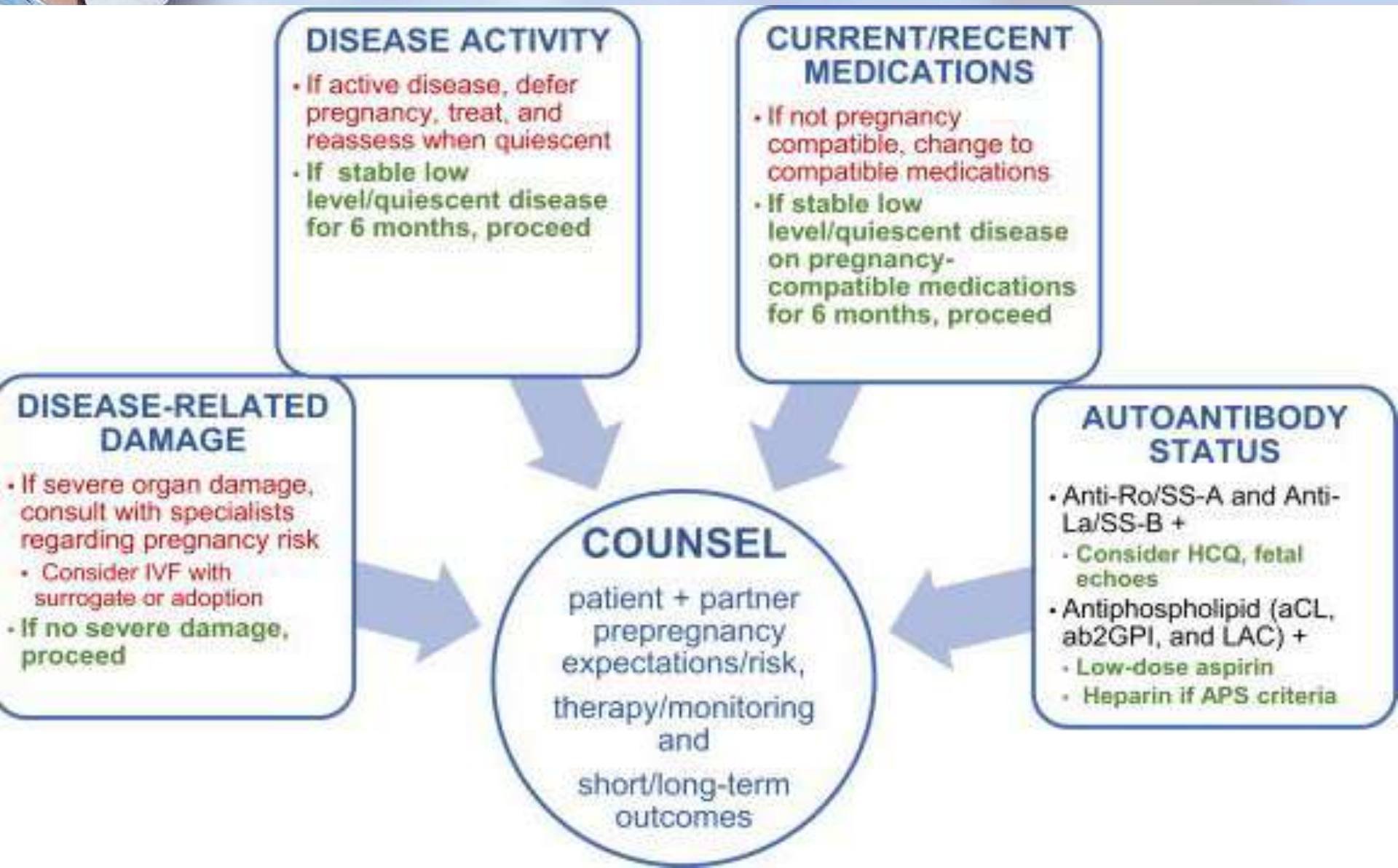
Liver disease

- During the acute stage of viral hepatitis, CHMs are contraindicated but progestogen-only methods and IUDs carry no restrictions.
- All methods are suitable for carriers and women with chronic disease or mild (compensated) cirrhosis.
- Only the copper IUD or barriers are suitable for women with severe decompensated disease, malignant hepatomas or hepatocellullar carcinoma.
- Women with focal nodular hyperplasia can use any hormonal method

Contraception and preconception counseling in women with autoimmune disease

- Contraception is important for women with autoimmune disease because of pregnancy risks associated with disease damage or activity and use of teratogenic medications.
- Long-acting reversible contraceptives (LARC) are most effective and recommended for women with AID.
- Estrogen–progestin oral contraceptives may be used in most patients with AID but should not be used in those with active SLE or those at increased risk for thrombosis, such as those with positive aPL, history of thrombosis, nephrotic syndrome, or active vasculitis.
- Progestin-only methods are good alternatives for patients who are unable to take estrogen and may decrease menstrual blood loss in patients on anticoagulation.
- Prepregnancy assessment includes assessment of disease-related organ damage, level of disease activity, antiphospholipid, anti-Ro/SS-A and/or anti-La/SS-B antibodies, and medications.

Contraception and preconception counseling in women with autoimmune disease



Anemias

- In women with sickle cell disease, the benefits of combined hormonal methods of contraception outweigh the risks, especially as pregnancy in these women is associated with an increased morbidity and mortality rate for both mother and foetus. Progestogen-only methods are particularly suitable. DMPA may, in addition, prevent sickling crises.
- For women with thalassaemia or chronic iron-deficiency anaemia all contraceptive methods are suitable. However, the LNG IUS may be of particular benefit in reducing menstrual blood loss.

Inflammatory bowel disease (IBD)

- Inflammatory bowel disease (IBD) includes both ulcerative colitis and Crohn's disease.
- The efficacy of COCs and POPs can be impaired in women with malabsorption due to severe small bowel disease, resection or severe diarrhoea or vomiting.
- The efficacy of all other combined or progestogen-only methods is not affected. Women, who develop VTE in association with their IBD or primary schlerosing cholangitis (PSC), should not use CHMs; and in the case of PSC, progestogen-only methods are unsuitable. For these women, a copper IUD or barrier method is suitable

Variable	ACOG Guidelines	WHO Guidelines
Obesity	Progestin-only or intrauterine contraception [*] may be safer	Benefit usually outweighs risks [‡]
Smoker	Progestin-only or intrauterine contraception [*] should be used	Risk unacceptable
Hypertension	Progestin-only or intrauterine contraception [*] should be used	Risk unacceptable
Diabetes	Progestin-only or intrauterine contraception [*] should be used	Risk unacceptable
Migraine	Progestin-only or intrauterine contraception [*] should be used	Risk unacceptable
None of the above risk factors	Healthy, nonsmoking women doing well on a combination contraceptive can continue their method until age 50–55 yr after weighing the risks and benefits	For women ≥40 yr of age, the risk of cardiovascular disease increases with age and may also increase with use of combined hormonal contraceptives. In the absence of other adverse clinical conditions, combined hormonal contraceptives may be used until menopause.

Case #I

- A 25-year-old G1 P1 desires contraception for the next 2 years. She reports that she had a deep venous thrombosis when she took the combination oral contraceptive pill 2 years ago. She cannot remember to take the pill every day and wants contraception that will allow her to be spontaneous. She does not take any medications and has no known allergies to medications. Menarche was age 13. Menstrual cycle is every 28 days, lasting for 7 days. She also mentioned troublesome dysmenorrhea that forced her to take analgesics with each period. She has been married for 3 years and denies any sexually transmitted infections. Her blood pressure is 120/70 mm Hg, heart rate 80 beats per minute (bpm), and temperature 37.2°C. Heart and lung examinations are normal. The abdomen is not tender and without masses. Pelvic examination reveals a normal anteverted uterus and no adnexal masses.
- State the main key issues in her case
- What would be the best contraceptive agent for this patient? And why?
- What would be contraindications to family planning methods and to the proposed contraceptive agent?

Case # II

- A 25-year-old G2 P2 desires contraception for the next 2 years. She reports that she is sickle cell anemia case. She cannot remember to take the pill every day and wants contraception that will allow her to be spontaneous. Menarche was age 13. Menstrual cycle is every 28 days, lasting for 7 days. She also mentioned troublesome dysmenorrhea that forced her to take analgesics with each period. She has been married for 3 years and denies any sexually transmitted infections. Her blood pressure is 120/70 mm Hg, heart rate 90 beats per minute (bpm), and temperature 37.2°C. Heart and lung examinations are normal. The abdomen is not tender and without masses. Pelvic examination reveals a normal anteverted uterus and no adnexal masses.
- State the main key issues in her case
- What would be the best contraceptive agent for this patient? And why?
- What would be contraindications to family planning methods and to the proposed contraceptive agent?