

Contraception

Katherine Rivlin, MD, MSc
Assistant Professor
Department of Obstetrics and Gynecology
The Ohio State University Wexner Medical Center

Disclosures

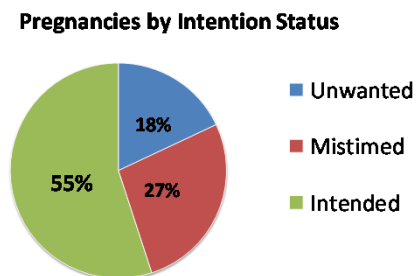
- Trainer for Nexplanon (Merck)

Who needs contraception?

- 61 million U.S. women in their child bearing years (15-44)
 - 43 million (70%) are at risk of unintended pregnancy
- 11% of these women are not using any form of birth control
- The average couple not using contraception has about an 85% chance of pregnancy in a year

Guttmacher Institute. Contraceptive Use in the United States. September 2016

Unintended Pregnancy in the US

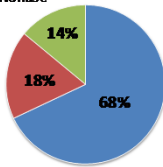


Guttmacher Institute. Unintended Pregnancy in the United States. September 2016

Contraceptive Use and Unintended Pregnancy

Contraceptive use among women at risk of unintended pregnancy

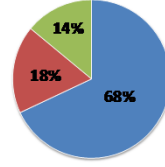
- Consistent use
- Inconsistent use
- Nonuse



Contraceptive Use and Unintended Pregnancy

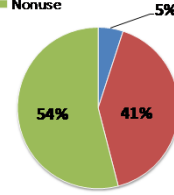
Contraceptive use among women at risk of unintended pregnancy

- Consistent use
- Inconsistent use
- Nonuse



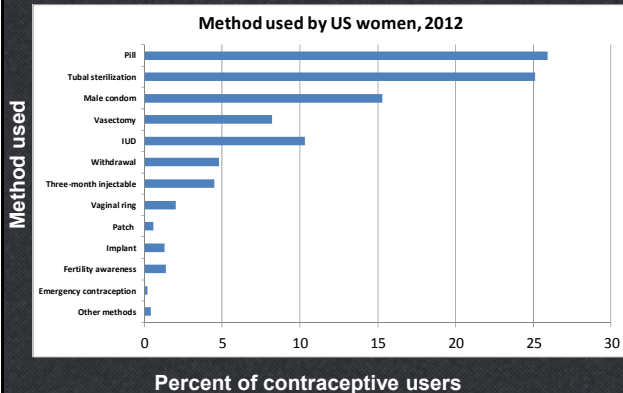
Contraceptive use among women experiencing unintended pregnancies

- Consistent use
- Inconsistent use
- Nonuse



What contraceptives do women use?

Method used by US women, 2012

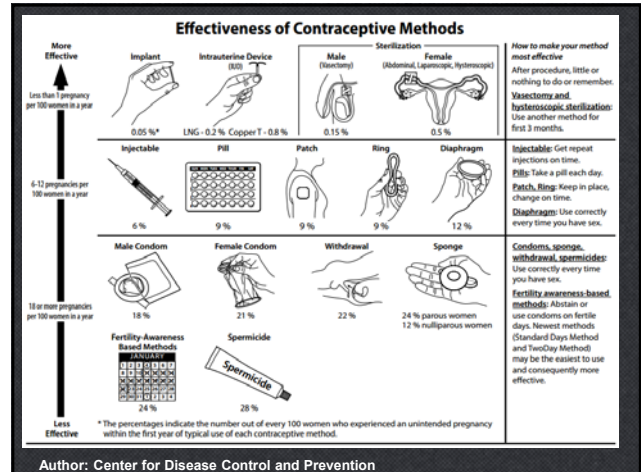


Percentage of women experiencing an unintended pregnancy during the first year of use

Method	Typical Use	Perfect Use
Copper IUD	0.8%	0.6%
LNG-IUD	0.2%	0.2%
Implant	0.05%	0.05%
3-month injectable	6%	0.3%
Ring	9%	0.3%
Patch	9%	0.3%
Pills	9%	0.3%
Male condom	15%	2%

Contraceptive Efficacy

<p>Most effective</p> <p>Prevents pregnancy >99% of the time</p> <p>Male/Female Sterilization IUD Implants</p>	<p>Very effective</p> <p>Prevents pregnancy ~91-99% of the time</p> <p>Pills Injectable Patch Ring</p>	<p>Moderately effective</p> <p>Prevents pregnancy ~81-90% of the time</p> <p>Male/Female Condom Diaphragm</p>	<p>Effective</p> <p>Prevents pregnancy up to 80% of the time</p> <p>Fertility awareness Spermicide</p>
--	---	--	---



Long-acting reversible contraception (LARC)

<ul style="list-style-type: none"> IUDs and implants Highly effective (pregnancy rates < 1%/yr) <ul style="list-style-type: none"> High rates of satisfaction and continuation LARC methods eliminate the problem of inconsistent method use, which can lead to unintended pregnancy 	<p>Most Effective</p>
--	------------------------------

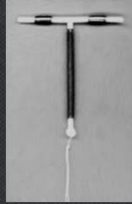
LARC - Advantages

<ul style="list-style-type: none"> Do not require frequent visits for re-supply No additional costs once placed Highly cost effective Reversible, with rapid return to fertility after removal Long acting (3-10 years) In-office procedure 	<p>Most Effective</p>
---	------------------------------

Copper IUD

Most Effective

- 10 year duration
- Typical use failure rate= 0.8%
- Mechanism of action:
 - Local sterile, inflammatory reaction within the uterus - spermicidal
- Hormone free
- Potential for heavier menses
- Can be used for emergency contraception



Author: ASwann at English Wikipedia

Levonorgestrel (LNG) IUD

Most Effective

- 5 year duration of action
- Locally acting with minimal systemic effects
- Typical use failure rate: 0.2%
- Mechanism of action:
 - Thickens cervical mucous, prevents entry of sperm into upper genital tract
 - Endometrial suppression



Author: Hic et nunc

Timing of IUD Insertion

Most Effective

- During menstruation
- Any time of menstrual cycle if pregnancy ruled out
- Postpartum
 - Immediate (within 10 minutes of placenta delivery) → higher expulsion rate
 - Or after 6 weeks
- Post-abortion (immediately after) → slightly higher expulsion rate

Progestin-Only Subdermal Implant

Most Effective

- 3 year duration of action
- Single rod, 4cm placed subdermally
 - Etonogestrel containing reservoir
 - Typical use failure rate: 0.05%
- Mechanism of action
 - Inhibits ovulation
 - Thickens cervical mucous
- Potential for irregular menses, amenorrhea



Author: Vera de Kok (CC BY-SA 4.0)

LARC use and adolescents

Most Effective

- ACOG recommendation October 2012
 - Implants and IUDs should be first-line methods for sexually active adolescents
- Do not increase an adolescent's risk of PID and STIs
- Do not affect the future fertility of adolescent users

IUD use and Nulliparous Women

Most Effective

- IUDs can (and should) be offered to nulliparous women
- In studies, nulliparous women report high satisfaction rates and high continuation rates
- Complication rates (expulsion and perforation) are no different between parous and nulliparous women

ACOG Practice Bulletin 121: Long-acting reversible contraception: Implants and intrauterine devices, July 2011.

Permanent sterilization

Most Effective

- Vasectomy – surgical interruption of vas deferens
- Tubal ligation – occlusion or removal of fallopian tubes
 - Postpartum
 - Laparoscopic
 - Transcervical



Depot Medroxyprogesterone Acetate ("depo" or DMPA)

Very Effective

- IM or SQ shot, given every 3 months
- Typical use failure rate: 6%
- Mechanism of action: inhibition of ovulation



DMPA – counseling points

- High safety
- Oligomenorrhea or amenorrhea
 - potential for irregular menses
- 1 in 4 women may experience weight gain
- Resumption of ovulation can lag
- Reversible decrease in bone density
 - Complete reversal once medication is discontinued

Very Effective

Progestin only contraceptive Pill

- Contains Norethindrone
- Take daily at the same time
- Mechanism of action
 - Thickens cervical mucus, decreases tubal motility, thins endometrium
 - Doesn't reliably inhibit ovulation
- Common to get irregular bleeding
- Higher safety than estrogen containing, lower effectiveness

Very Effective

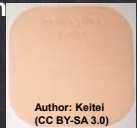


Combined hormonal contraceptives

- The Pill
 - Oral absorption
 - Taken daily
- The Patch
 - Transdermal absorption
 - Applied weekly
- The Ring
 - Vaginally absorbed
 - Monthly removal and insertion



Author: BetteDavisEyes at English Wikipedia



Author: Kettel
(CC BY-SA 3.0)



Author: Sakky

Very Effective

Non-contraceptive benefits of combined contraceptives

- Reduction of menstrual blood loss
- Reduction of dysmenorrhea
- Decreased risk of ovarian cysts
- Decreased acne
- Reduction in physical and emotional changes around the menstrual cycle
- Reduction in ovarian and endometrial cancer risk

Very Effective

Contraindications to estrogen containing contraceptives

- Estrogen increases risk of VTE Very Effective
- DVT or PE
- Migraine with aura
- Smoker over 35
- MI, CVA, hypertension
- Pregnancy increases VTE risk much more!

US Medical Eligibility Criteria for Contraceptive Use

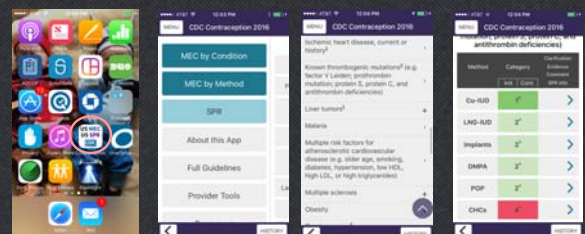
- To assist health care providers in determining safe use of contraception
- CDC website, mobile app
- Evidence based consensus driven
- Guidance only; Providers should still consider individual clinical circumstances of each patient

Classification of Medical Eligibility Criteria, 1 - 4

1. No restriction for use ●
2. Advantages outweigh the theoretical/proven risks ●
3. Theoretical/proven risks outweigh the advantages ●
4. Unacceptable health risk ●

WHO MEC, 3rd Edition, 2004

CDC MEC App



Barrier contraception

- **Male and female condoms**
 - Latex or polyurethane
 - STI prevention
 - 12% failure
 - Encourage “dual method use”
- **Diaphragm**
 - Used with spermicide,
 - Leave in place for 6 hours after intercourse
 - 18% failure

Moderately Effective



Author: Ceridwen (CC BY-SA 2.0 FR)



Author: Axefan2

Fertility Awareness

- **Abstinence from intercourse during fertile phase of cycle**
- **Charting of cycle length, basal body temperature, and cervical mucus changes**
- **Based on 5 days sperm viability, ovum viability of 24-48 hours**

Effective



Author: DellexCC BY-SA 3.0

Emergency contraception

- **Use of a medication or device to prevent pregnancy after intercourse**
- **Mechanism of action: delay of ovulation**
- **Efficacy: prevents 75% of expected pregnancies**
- **The sooner used the better**

Not recommended as replacement for other contraceptives



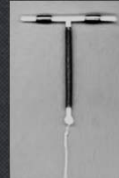
Emergency contraception

Not recommended as replacement for other contraceptives

Emergency contraceptive regimens:

- Insertion of a copper IUD,
- Levonorgestrel 1.5 mg (Plan B one step) OTC
- Ulipristal acetate 30 mg (Ella), prescription
- Various doses of OCPs – The Yuzpe Regimen

<http://ec.princeton.edu/questions/dose.html#dose>



Author: ASwann at English Wikipedia



Author: Bgtp - (CC BY-SA 3.0)

Patient centered care



Resources

- CDC Medical Eligibility Criteria for Contraceptive Use
 - <https://www.cdc.gov/reproductivehealth/contraception/mmwr/mec/summary.html>
- Mobile App
 - <https://www.cdc.gov/mobile/mobileapp.html>
- Patient resources
 - Bedsider.org