CH. 20 - REPRODUCTIVE SYSTEM

Objectives:
1. Contraception
2. STDs

For more information:
- [www.plannedparenthood.org/health-info/birth-control](http://www.plannedparenthood.org/health-info/birth-control)
- FMU Student Health Center
- Your personal physician

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**FMU's Student Health Services**
Monday - Friday
Hours: 8:30 a.m.- 12:30 p.m. & 1:30 p.m. - 4:30 p.m.
Students are strongly encouraged to make an appointment to be seen.

Education Foundation Building
Email: swalters@fmarion.edu
(843) 661-1844 – Office

Birth Control Options available:
- Birth Control Pills
- Ortho Evra Patch
- Nuva Ring
- Depo-Provera Injections
- Administration of Plan B ($15) as indicated

Screening available:
- Chlamydia and Gonorrhea screening $60
- Pregnancy Tests are free
- Bacterial Vaginosis, Yeast Infections, and Trichomoniasis screening is free
- Pap Smear $40

**Please don’t go to Pregnancy “Crisis Centers” for info. on pregnancy, birth control, Plan B, etc…. They give inaccurate info. Please see a REAL physician.**
### Stats for South Carolina

- **Rates of teenage pregnancy in U.S.:** 24.2% (per 1000 people ages 15-19).  
  (as of 2015)  
- **in S.C.:** 36.5% - Highest % in Dillon county.

- Rates WERE higher 20 yrs ago (this number has gone down), BUT we’re still 11th in nation for high rates unplanned pregnancy, AND **WE are higher than national average.**

- 50% of unplanned pregnancy in S.C. is in women living below poverty line (likely due to lack of access to contraception, and lack of comprehensive sex education.
  
- Rates decrease w/ better education & access to publicly funded or low-cost family planning services (ex. Medicaid, Planned Parenthood)

- SC Senate a **Bill** introduced to ensure medically-accurate sex-ed in public schools (2016. **status:** being viewed by Senate Committee of Education)

- SC House approved a bill for 12-month prescription for contraceptives through Medicaid & private insurance.
Statistics show, nationally, that abstinence-only education does not work. Kids have sex. States w/abstinence only ed have higher rates of unplanned pregnancy and STDs. **FACT!**

### 6. Birth Control.

1. **Abstinence – no sex**
2. **“Avoidance” (avoid sex during “fertile time”)**
3. **Permanent methods**
4. **Spermicides**
5. **Barrier methods**
6. **Hormonal methods**
7. **“Other”**
### 2. Avoidance

**Rhythm method** – only having sex when not in fertile period (days 8-18). Depends on regular cycles. *(FR = 20%)*

**Coitus interruptus** – pull out penis before ejaculation. Depends on self control. *(FR = 30%)*

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### 3. Permanent methods = irreversible

**Vasectomy** = cut vas deferens  
**Tubaligation** = cut fallopian tubes

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*FR = typical failure rate*

*FR = <1%*
4. Spermicides  
FR = 15% (when used correctly)  
not used correctly FR = ~ 30%  
*Foams, creams, contraceptive films, gels, suppositories, etc...*

- Placed into vagina 10 – 15 min before sex.
- Contains spermicidal agent (ex. Nonoxynol-9) that kills sperm or inhibits their movement.
- Need to apply fresh each time before sex.
- Best when used in combination with another form of BC.
- Can be irritating to some men and women (try different brands).

Vaginal Contraceptive Film (“Strip”):  
FR = 15%  
= Thin spermicide-embedded sheet place into vagina before sex, dissolves w/vaginal fluids.

- New strip applied with each sexual encounter.
- NOT reliable as sole form of contraception.
- Does NOT protect against STDs.

Also available as **Contraceptive Spermicidal Suppositories**  
(tablet or pellet inserted into vagina before sex)
5. Barrier Methods

- Male condom: Only form of BC that protects genitals against STDs
- Female condom
- Diaphragm
- Cervical cap

Female condom

FR = 3-18%
Usually failure rate has to do with improper storage of condoms.

FR = 10-20
Usually failure has to do with improper placement.
## 5. Barrier Methods

- **Male condom**
  - Only form of BC that protects genitals against STDs

- **Female condom**
  - FR = 20-26%
  - Usually failure has to do with improper placement.

- **Diaphragm**

- **Cervical cap**
  - FR = 1-3% usually in 1st few months

## 5. Hormonal

### The Pill

**PREVENTS OVULATION!**

- It does NOT cause abortion.

Delivers synthetic estrogen & progesterone

- Estrogen & progesterone inhibit (by negative feedback) hypothalamic GnRH & pituitary LH & FSH

- Low pituitary LH & FSH inhibits egg development and prevents ovulation.
- Also reduces endometrial growth (good for people w/endometriosis)
- Also thickens cervical mucus (barrier to sperm)

**Typical hormonal pill** has 21 days of “active” (contains hormones) pill and 7 days of “placebo” (hormone-free) pill.

During 21 days of active pill, endometrium thickens but no egg develops. During 7 days of hormone-free, endometrium breaks down & have period.
Seasonale = low dose estrogen & progesterone. Take 84 days active pill followed by 7 days placebo. Repeat.

Result = have only 4 periods / year. Good for people with endometriosis or ovarian polycystic ovarian syndrome or immediate family history of ovarian cancer.

Lybrel (Any) = take active pill 365 days/year (no placebo = no periods)

Great for people with endometriosis, polycystic ovarian syndrome, or immediate family history of ovarian cancer.

Antibiotics known to interfere with birth control pill:

- Tetracycline
- Ampicillin
- Rifampin
5. Hormonal

Hormone Injections:  \( FR = 0.3 - 1.0\% \)

**Lunelle** – monthly injection of combo of estrogen & progesterone. (Distributed in vials only. Pre-filled syringes no longer sold in US.)

**Depo-Provera** – injection once every 3 months, contains only progesterone.

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<th>Hormone Implants:</th>
<th>( FR = 0.05 - 1.0% )</th>
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<td><strong>Norplant</strong>, <strong>Implanon, Nexplanon</strong></td>
<td>contains progesterone. Implants last 3 years.</td>
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5. Hormonal

**Hormonal Patch: Ortho Evra – FR = <1%**
Contains estrogen & progesterone. New patch every week for 3 weeks, go patch-less for 1 week.

*The patch isn’t for everyone – high levels of hormones in patch (higher than other methods), because it’s transdermal. People w/ history of blood clots, stroke, or estrogen-sensitive cancers (breast, ovarian, uterine) should avoid this form BC.*

5. Hormonal and/or copper-based

**Intrauterine device (IUD): FR = <2%**

> Small T-shaped device inserted into uterus by doctor.

> More expensive than other forms
> Must be inserted by physician,
> Can sometimes shift out of place,
> BUT can last 10 -12 yrs!

> **Mirena or Skyla** contains progesterone (good 5 or 3 yrs)
> **ParaGard** contains small amt. copper. (good 12 years!)

> Progesterone works by negative feedback to inhibit GnRH, LH, & FSH preventing ovulation, thickening cervical mucus. Copper disrupts sperm movement.

**It does NOT cause abortion!**
5. Hormonal

Cervical Ring (NuvaRing):
FR = <1%
> small ring containing estrogen and progesterone placed over the cervix.
> Put fresh ring in, stays in place 3 weeks
> Go without ring for 1 week (no hormone, have period).
> depends on proper placement.

Emergency Contraception:
↓chance pregnancy by 75%

Plan B (contains Levonorgestrel)
Plan B does not cause an abortion!
If you are already pregnant it won’t stop it.
> It is a high dose of birth control hormone.
> After unprotected sex, it can take up to 6 days for sperm to meet an egg.
> If a woman hasn’t ovulated yet, emergency contraception prevents her from ovulating by delivering high dose of progesterone, which inhibits pituitary FSH & LH.
-If already ovulated at time of sex, can still get pregnant.
RU486 (Mifepristone) – THIS causes an abortion.

Clinical App Pg 737

- Mifepristone can be used in lower doses as emergency contraception.
- At higher doses it is abortifacient (97% effective).
- Taken after pregnancy, causes abortion during the first 2 months of pregnancy (<8wks) by blocking progesterone receptors.
- Causes loss of placenta’s attachment to endometrium.
- 2 days after taking mifepristone, need injection of misoprostol (cytotec) – pronounce “misoprawstawl”

6. “Other”

Reversible Inhibition of Sperm Under Guidance (RISUG) or simply lead to current male BC “Vasalgel”

- Reversible and non-hormonal
- QUICK (10 – 15 min procedure in office)
- Cheap.
- Long-term effectiveness (10 yrs)
- Inject gel into vas deferens (blocks sperm transport)
- Remove when want be getting injection that dissolves gel.
- Studies show quick return to normal fertility.

- In USA, clinical trials began in 2016, & continue through 2017, for possible introduction to market in 2018.

Sperm that are too big can’t pass through. Smaller sperm get in but are shredded.

Review

Contraceptive methods:

- Abstinence
- Avoidance
- Permanent
- Spermicides
- Barrier (male/female condoms, cervical cap, diaphragm)
- Hormonal (pill, injections, implants, patches, IUD, cervical ring, emergency contraception)
- Male pill, implant, injection
- “Other” methods (IVD, RISUG)
Some common STDs:

**Bacterial STDs**

1. **Chlamydia** – caused by *Chlamydia trachomatis*, the most frequently reported infectious disease in the U.S. Highly contagious and often without noticeable symptoms.

2. **Gonorrhea** – caused by the bacterium *Neisseria gonorrhoeae*. See painful urination, discharge, or no symptoms at all. Is becoming resistant to most antibiotics!

3. **Syphilis** – caused by *Treponema pallidum*.

**Viral STDs**

1. **herpes simplex virus**
   - *simplex 1* – causes cold sores
   - *simplex 2* – causes genital herpes

2. **HIV** (human immunodeficiency virus) – can be latent for many years, may lead to AIDS (acquired immunodeficiency syndrome).

3. **HPV** (human papilloma virus) – over 40 strains!

Rates of chlamydia infection in USA are INCREASING!
2. **Gonorrhea** - caused by the bacterium *Neisseria gonorrhoeae*. Painful urination, discharge, genital puss, or no symptoms at all. Is becoming resistant to most antibiotics!

3. **Syphilis** – caused by *Treponema pallidum*. *Infection has 3 stages*:

   - **Stage 1: Chancre** (hard, painless bumps) at site of entry.
   - **Stage 2**: Reddish, brown rash over entire body.
   - **Stage 3: Gummas** (lesions) on exterior and interior of body.
Viral STDs

1. Herpes Simplex Virus (HSV)

CDC says 1 in 6 Americans infected with Herpes simplex 2 virus.

HSV can be latent, and then reactivate into painful blisters, which show up at sites of infection.

→ no cure; treatment is to minimize outbreak severity

2. HPV – over 40 strains!

Present in 50% of sexually active adult population. Can cause polyps and warts at site of contact. Can lead to increased risk for cancer.

Vaccine! (Gardasil)

Cervical cancer stages

Cervical polyps

Vaginal warts

Cervical warts

Penile warts

Throat cancer?
**Viral STDs**

**3. HIV:**
- Nearly 35 million people worldwide are infected.
- Approximately 1.4 million people in North America are infected.
- Virus attacks immune system (T-cells). Your body is supposed to produce millions of T-cells daily. T-cell counts is a method to track progression of HIV infection.

- **4 stages of HIV:**
  1. **Acute primary infection** (some people’s immune system defeats virus)
      - Flu-like symptoms, soreness, fever.
  2. **Latent infection** - virus can lie dormant in body for 10 years, but still infectious.
  3. **Symptomatic infection** - viral load increases, drop in T-cells, opportunistic infections, weight loss.
  4. **AIDS** - immune system compromised, T-cell counts < 200 cells/cubic ml blood.

**Other common STDs (non bacterial or viral):**

**STD caused by protozoan:**

*Trichomoniasis (Trichomonas vaginalis)*

70% of infected people do not show symptoms.

Symptoms range from mild irritation to severe inflammation within 5 to 28 days after infection, but might develop symptoms much later.

- Men may feel itching or irritation inside the penis, burning after urination or ejaculation, or some discharge from the penis.
- Women may notice itching, burning, redness or soreness of the genitals, discomfort with urination, or a thin discharge with an unusual smell that can be clear, white, yellowish, or greenish.
STD's* caused by fungi

A) Jock itch (*Tenia cruris*)
itching or a burning sensation in the groin area, thigh skin folds, or anus. It may involve the inner thighs and genital areas.

B) Yeast infections (*Candida albicans*)
Can occur in men or women.

*C. albicans* lives in 80% of the human population without causing harmful effects, although overgrowth of the fungus results in *candidiasis*.

Common as vaginal yeast infection or in mouth as “thrush”
Other common STDs:

STD's caused by parasites:

Pubic lice or crabs (*Pediculosis pubis*)
Pubic lice is a parasitic insect that feeds exclusively on blood.

Can be spread by intimate contact with an infected person. Can live in any body area covered by hair, even eyelashes!

Infection Rates of Diseases in the U.S. (per year) – Most are STDs

STD causes by protozoan parasite

For more info. see [http://www.cdc.gov/](http://www.cdc.gov/)
Review

STDs:
- Bacterial (Chlamydia, Syphilis, Gonorrhea)
- Viral (HIV, HPV, Herpes)
- Protozoan (Trichomoniasis)
- Fungal (Jock itch, yeast infections)
- Parasites (Pubic lice)
- Infection rates in US/year (most to least common)