CONTRACEPTION

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University of Iowa Student Health
April 3, 2014
Contraception choices

- Abstinence
- Rhythm/NFP
- Withdrawal
- Condoms
- Spermicides
- Contraceptive sponge
- Diaphragm/cap
- Lactation
- Emergency contraception
  - Pills
  - Shot
  - Patch
  - Ring
  - Implant
  - IUD
  - Surgical (TL/vas)
Disclosures

• No financial disclosures

• I will use brand names to facilitate communication, I have no preference for a brand or company
  • Ex: Mirena in place of larger levonorgestrel intrauterine system

• Dr. Carl Djerassi
• Mother of the pill
• Norethindrone chemist
Topics

- Long acting reversible contraception for all
- The “best” pill
- Migraines with aura
- DepoProvera and the Black Box
- DepoProvera, late
- Bleeding with implant
- (Perimenopause)
Contraceptive efficacy

Comparing effectiveness of birth control methods

More effective
Less than 1 pregnancy per 100 women each year

Less than 1 per 100
- Vasectomy
- Female Sterilization
- IUD
- Implant

2-9 per 100
- LAM (Breastfeeding)
- Shot
- Pill
- Ring
- Patch

15-24 per 100
- Diaphragm
- Male Condom
- Female Condom
- Withdrawal
- Sponge
- Cervical Cap

About 25 per 100
- Spermicide
- Fertility-Awareness Based Methods

Less effective
About 25 pregnancies per 100 women each year

- Vasectomy: Use another method for first 3 months.
- Female sterilization, IUD, implant: Little or nothing to do.

- LAM (for 6 months): Breastfeed often, day and night.
- Shot: Get repeat shots on time.
- Pill: Take a pill each day.
- Ring, Patch: Keep in place, change on time.

- Diaphragm, male condom, female condom, withdrawal, cervical cap, sponge: Use correctly every time you have sex. Cervical cap and sponge are less effective for women who have given birth.

- Spermicide: Use correctly everytime you have sex.
- Fertility awareness based methods: Abstain or use condoms on fertile days. Standard Days Method and Two Day Method may be easiest to use.
Long Acting Reversible Contraception

- LARC
  - Implant
    - Nexplanon
  - IUD
  - Copper
    - Paragard
  - Progestin
    - Mirena
    - Skyla
Avoid the stork

- Iowa Initiative to Reduce Unintended Pregnancies
- 2007-2012
- Outreach education thru hair salons, pharmacies, radio novellas, stork activities
- Free LARC contraception
Iowa Initiative, Increase in LARC
Decrease in unintended pregnancies
Decrease in abortion

**Percent of Iowa Pregnancies Terminated by Abortion by Year**

**Percent Change in Abortion Ratio, Iowa vs. Other States, 2007-2011**
Case #1

• 18 y/o P0 presents for physical and refill of her pill
• She has been using the pill for a year for contraception and heavy menses
• She has no contraindication to their use
• She takes her pill daily at 11PM
• She misses maybe 2-3 pills/month
• She ran out 2 months ago
Case #1

- NKDA.
- Meds: None
- PMH, PSH, FmHx unremarkable
Case #1: In addition to recommending condoms for STI protection, the most effective contraceptive option for this 18 year old woman is

A. Pill
B. Extended Cycle Pills
C. Ring
D. Depo-Provera Shot
E. LARC (IUD)
Intrauterine Devices

- **Paragard** (copper) IUD
  - FDA 1988; 2006 approved for 16 and up
  - Approved for 10 years (studies support up to 12 years)
  - Associated with increased blood loss and cramps in 30%
  - Size 32 x 36 mm

- **Mirena** (levonorgestrel) IUS
  - FDA 2000; 2009 approved for heavy bleeding
  - Approved for 5 years (studies suggest up to 7 years)
  - Associated with absent or irregular bleeding
  - Size 32 x 32 mm

- **Skyla** (levonorgestrel) IUS
  - FDA 2013 for all women (556 nulligravis)
  - Approved for 3 years
  - After 1 year, 5% amenorrhea (Mirena 20%)
  - Size 28 x 30 mm
IUDs

• Full circle

• ACOG Committee Opinion, “IUDs may be safely used by nulliparous women and by adolescents” All IUDs
• US Med Eligibility, IUDs Category 2, menarche-<20
  • FDA approved for nulliparas (Paragard)
  • FDA approved in nulliparas (Skyla)
### Levonorgestrel IUS

<table>
<thead>
<tr>
<th>13.5 mg (Skyla)</th>
<th>52 mg (Mirena)</th>
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</thead>
<tbody>
<tr>
<td><strong>0.4% failure rate/1 year</strong></td>
<td><strong>0.2% failure rate/1 year</strong></td>
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<tr>
<td><strong>4.56% expulsions</strong></td>
<td><strong>2.9-5.8% expulsions</strong></td>
</tr>
<tr>
<td><strong>21.9% discontinued; 3 yrs</strong></td>
<td><strong>20% discontinued; 5 yrs</strong></td>
</tr>
<tr>
<td><strong>6% amenorrhea @ 1 yr</strong></td>
<td><strong>20% amenorrhea @ 1yr</strong></td>
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<tr>
<td></td>
<td><strong>Approved for 5 years (7 yrs)</strong></td>
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<tr>
<td><strong>Approved for 3 years</strong></td>
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</tbody>
</table>

*ObGyn 2013, 122(6) 1205*
Contraceptive Implants

- Etonogestrel implant (Nexplanon)
  - Most effective form of reversible contraception, 99.9%
  - 3 years **
  - Subdermal, easy to place
  - “Depo lite”
    - No suppression of serum estrogen levels
    - ½ average weight gain; ½ removal for acne (1%)
  - Effective BMI 40+

- Absent or irregular bleeding
  - Counseling women about bleeding increases continuation
  - Light spotting/bleeding, up to daily, common in first month
  - 55% women have fewer than 3 episodes of bleeding/spotting in 90 days
  - 90% continue this form of birth control for more than one year

**Studies from Thailand, China suggest efficacy for up to 4 years.
Case #1

- 18 y/o P0 presents for physical and refill of her pill
- She has been using the pill for a year for contraception and heavy menses
- She has no contraindication to their use
- **Really** wants to continue the pill, a regular monthly period is **really** important to her
- She promises to set an alarm on her smart phone
The Art of Medicine
Art of the pill

• How do you choose a pill? What is the best pill?
  • Compliance and cost

  • “Is there a pill you have heard works better than others?”
    • This is the best pill

  • “Are you able to submit this to your insurance?”
    • No
    • Orthotricyclen or Orthocyclen
    • $9/pack at Target and Walmart
Art of the pill

- There are more than 80 different pills
- Always choose a generic
- Start with a pill in the “middle of the pack”
  - Pills have the same estrogen (20-35 mcg)
  - Pills have 9 different progestins
  - Middle of the pack refers to estrogen
Art of the pill

• 30 mcg pill
  • Desogen (Apri, Reclipsen, Emoquette, Solia)
  
  • Yasmin (Ocella, Safyral)
  • LoOvral (Cryselle, Low-ogestrel)
  • Nordette (Portia, Levora, Levelen)
Breast tenderness/nausea

• Breast tenderness, nausea
  • Decrease estrogen
  • 20 mcg pill
    • Loestrin 1/20 (Junel, Microgestin, Gildes)
    • Yaz (Giavani, Loryna)

• Mircette (Kariva, Azurette, Viorele, Mercilon)
• Alesse (Aviane, Lessina, Lutera, Sronyx)
Spotting/Irregular bleeding

- What time do you take you pill?
- In the past month, how many have you taken more than 4 hours later or the next day?

- Spotting or missed periods
  - If not related to pregnancy, STI or polyp
  - 35 mcg pill
    - OrthoNovum 1/35 (Necon, Nortrel, Norinyl, Dasetta)
    - Demulen 1/35 (Zovia, Kelnor)
    - Ovcon 35 ** (Balziva, Zenchent, Philith, Femcon)

- **Higher estrogen, lower progestin.
US Medical Eligibility for Contraception

**Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use, 2010**

This summary chart only contains a subset of the recommendations from the US MEC for contraceptive use: www.mec.gov/products/medication/cream.

Most contraceptive methods do not protect against sexually transmitted infections (STIs). Consistent and correct use of the male latex condom reduces the risk of HIV and STIs.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Contraceptive Method</th>
<th>Progestin Only Pill</th>
<th>Intrauterine Device (IUD)</th>
<th>Contraception and Sterilization</th>
<th>Systematic Use</th>
<th>Contraception and Sterilization</th>
<th>Contraception and Sterilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1</td>
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<td>Anemia</td>
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<td>Cancer</td>
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<tr>
<td>Cholesterolemia</td>
<td>4</td>
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<td>4</td>
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<td>Diabetes</td>
<td>5</td>
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<td>Endometriosis</td>
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<td>Hepatitis</td>
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<td>HIV</td>
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<td>Menopause</td>
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<td>Osteoporosis</td>
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<tr>
<td>Polycystic Ovary Syndrome (PCOS)</td>
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<td>Renal Failure</td>
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<tr>
<td>Stroke</td>
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<td>13</td>
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<td>Tuberculosis</td>
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<td>14</td>
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<tr>
<td>Viral Infection</td>
<td>15</td>
<td>15</td>
<td>15</td>
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<td>15</td>
</tr>
</tbody>
</table>

- **Legend:**
  - 1: Not prohibited (medical condition cured)
  - 2: Probable or minimal risks (theoretical or proven risks)
  - 3: Theoretical or proven risks outweigh the advantages
  - 4: Unacceptable health risk control not to be used

This chart is a summary of the recommendations from the US MEC for contraceptive use. For complete guidance, visit www.mec.gov/products/medication/cream.

Most contraceptive methods do not protect against sexually transmitted infections (STIs). Consistent and correct use of the male latex condom reduces the risk of HIV and STIs.
Contraception and thrombosis

<table>
<thead>
<tr>
<th>Condition</th>
<th>Sub-condition</th>
<th>Combined pill, patch, ring</th>
<th>Progestin-only pill</th>
<th>Injection</th>
<th>Implant</th>
<th>LNG—IUD</th>
<th>Copper—IUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep venous thrombosis (DVT) / Pulmonary embolism (PE)</td>
<td>a) History of DVT/PE, not on anticoagulant therapy</td>
<td>I</td>
<td>C</td>
<td>I</td>
<td>C</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>i) higher risk for recurrent DVT/PE</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ii) lower risk for recurrent DVT/PE</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>b) Acute DVT/PE</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>c) DVT/PE and established on anticoagulant therapy for at least 3 months</td>
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<tr>
<td></td>
<td>i) higher risk for recurrent DVT/PE</td>
<td>4*</td>
<td>2</td>
<td>2</td>
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<td></td>
<td>ii) lower risk for recurrent DVT/PE</td>
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<tr>
<td></td>
<td>d) Family history (first-degree relatives)</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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<tr>
<td>e) Major surgery</td>
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</tr>
</tbody>
</table>
Case #2, Migraine w/ aura

- 25 year old P2 for contraceptive pill renewal. She has started having migraines with bilateral scotoma, bilateral visual field cut and numbness across her right cheek. Her BMI is 34.

- A. Pill
- B. Ring
- C. Patch
- D. DMPA
- E. Progestin IUD
Case #2, Migraine w/ aura

A. Pill
B. Ring
C. Patch
D. DMPA
E. Progestin IUD
US Medical Eligibility for Contraception

![Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use, 2010](chart_image)

The chart provides guidelines for medical eligibility criteria for contraceptive use, including conditions such as age, menopause, and medical history.

[Source: CDC](https://www.cdc.gov/reproductivehealth/contraception/pdf/medeligcriteria.pdf)
### Contraception and migraines

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<tr>
<th>Condition</th>
<th>Sub-condition</th>
<th>Combined pill, patch, ring</th>
<th>Progestin-only pill</th>
<th>Injection</th>
<th>Implant</th>
<th>LNG–IUD</th>
<th>Copper–IUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>a) Non-migrainous</td>
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<td>1*</td>
<td>2*</td>
<td>1*</td>
<td>1*</td>
<td>1*</td>
<td>1*</td>
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<tr>
<td>b) Migraine</td>
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</tr>
<tr>
<td>i) without aura, age &lt; 35</td>
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<td>2*</td>
<td>3*</td>
<td>1*</td>
<td>2*</td>
<td>2*</td>
<td>2*</td>
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<tr>
<td>ii) without aura, age ≥ 35</td>
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<td>3*</td>
<td>4*</td>
<td>1*</td>
<td>2*</td>
<td>2*</td>
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<tr>
<td>iii) with aura, any age</td>
<td></td>
<td>4*</td>
<td>4*</td>
<td>2*</td>
<td>2*</td>
<td>3*</td>
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<tr>
<td>History of bariatric surgery</td>
<td></td>
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<tr>
<td>a) Restrictive procedures</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>b) Malabsorptive procedures</td>
<td></td>
<td>COCs: 3</td>
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<td>P/R: 1</td>
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</tr>
</tbody>
</table>
# Migraine with aura

## Risk factors

- Age 15-44
- OCP use
- Migraines
- Hypertension
- OCP w migraine
- Migraine w/ aura
- OCP, migraine w aura
- Smokers
- OCP, smokers, migraines

## Risk for CVA

- 10 in 100,000
- 2-4x
- 2-4x
- 5x
- 4-8x
- 4-6x
- 8-10x
- 10-12x
- 40x
Contraindications to the pill (Level 4)

- Breast cancer
- Liver disease—severe cirrhosis; tumors
- DVT/PE
  - History of DVT/PE
  - Thrombogenic mutations
    - Factor V Leiden, Protein S, Protein C, Prothrombin gene mutation, Anti-thrombin III
    - Lupus with Anti-phospholipids (Lupus without, OK)
- Migraines with aura
- Vascular disease
  - Severe hypertension, hx CVA
  - Vascular disease, ischemic heart disease
- Smokers, >35 yr, >15 cigs
Case #3, DepoProvera/ Black box

- 18 year old P1 for DepoProvera (DMPA) renewal.
- She started DMPA 4/3/2012 and has been using it with great success (no bleeding; no weight gain; no pregnancy) for 2 years. She would like to continue. She is of normal weight, BMI 22. There is no family history of osteoporosis. She does NOT want anything implanted in her body.
- A. Refuse the DMPA based on the Black Box warning, it has been 2 years, switch her to the pill
- B. Give her the shot
- C. Get a Dexa scan, if normal give her the shot
- D. Switch her to the progestin IUD
**Case #3, Black Box**

A. Refuse the DMPA on the Black Box warning. It has been 2 years, switch to the pill.

B. Give her the shot

C. Get a Dexa Scan. If normal give shot

D. Switch to progestine IUD
DepoProvera (DMPA)

- FDA 1992 (World, 1973)
- 150mg IM or 104mg SC every 11-13 weeks
  - Start in first 5 days of cycle
- Efficacy not changed by weight, meds (inc seizure meds)
- Suppresses ovulation, lowers ovarian estradiol

- 2004 FDA issued Black Box warning
  - “Bone loss is greater with increasing duration of use and may not be completely reversible. Depo-Provera Contraceptive should be used as a long-term birth control method (eg, longer than 2 years) only if other birth control methods are inadequate.
Depo and bone density

• WHO, 2005
  • There should be no restriction on the use of DMPA, including no restriction on duration of use among women 18-45.

• ACOG --“concerns regarding the effect of DMPA on bone mineral density should neither prevent practitioners from prescribing DMPA nor limit its use to 2 consecutive years…should not perform BMD testing solely in response to DMPA use”
  • ACOG Committee Opinion, 2008 Depot Medoxyprogesterone Acetate and Bone Effects

• SAM—”Continue prescribing DMPA to adolescents in need of contraception with adequate explanation of benefits and risks. Duration of use need not be restricted to 2 years ”
  • Recommend calcium and Vit D
Depo and bone density

• If Depo is working well and risk factors are not high, continue DepoProvera

• Counsel on alternatives, implant as “Depo-lite”

• Counsel on weight bearing exercise and calcium/Vit D
Case #4,  Late Depo

• 18 year old P1 for DMPA shot, 16 weeks after last. She has continued to be sexually active without condoms, last 2 days ago.

• A. Give her the DMPA if her pregnancy test is negative
• B. Give her Plan B, then her DMPA
• C. Give her Plan B, condoms and have her return in 2 weeks for pregnancy test and Depo
A. Give her the DMPA if her pregnancy test is negative.
B. Give her Plan B, then her DMPA.
C. Give her Plan B, condoms and have her return in 2 weeks for a pregnancy test and Depo.
Case #4, Late for Depo

- Early pharmacologic studies suggest suppression up to 17 weeks
  - J Repro Med. 1996;41(5suppl):381

- Depo Interval Study 2008
  - Thailand, Uganda, Zimbabwe
  - 2,290 women, 13,608 DMPA intervals
  - Pregnancy rates same at 13, 15, 17 week intervals
    - Contraception. 2008; 77:410

- C. Plan B, condoms, shot in 2 weeks
  - No benefit to serum pregnancy test
Case #5, Bleeding with implant

- 23 year old P0 LMP (implant) presents with light bleeding 21 of 31 days last month, 4 months after her Nexplanon was placed. After testing her for Chlamydia, you offer:

- A. Doxycycline 100mg bid for 7 days
- B. Naproxen bid for 5 days each month
- C. Estradiol 2 mg daily for 30 days or more
- D. OCPs for one month or more
- E. Remove the implant and start another form of birth control
Case #5, Bleeding with implant

A. Doxycycline 100mg BID for 7 days
B. Naproxen BID for 5 days each month
C. Estradiol 2 mg for 30 days or more
D. OCPs for one month or more
E. Remove the implant and start another form of birth control.
Predicting who will bleed

- BMI >30, less bleeding
- Bleeding patterns in the first 3 months tend to predict the pattern in subsequent months
Websites

• For patients
  • plannedparenthood.org
  • bedsider.org

• For providers
  • arhp.org
  • managingcontraception.com/qa
  • cdc.gov/reproductivehealth/unintendedpregnancy/usmec.htm

• Contraceptive Technology, 20th edition; Hatcher et al
COULD IT BE...
PERIMENOPAUSE?

How women 35–50 can overcome forgetfulness, mood swings, insomnia, weight gain, sexual dysfunction, and other telltale signs of hormonal imbalance

STEVEN R. GOLDSMITH, M.D., and LAURIE ASHNER

Foreword by Lisa L. Blackhall, M.D.
Case #6--Perimenopause

- 48 year old P3 healthy nonsmoker w/ BMI of 23. She has started having vasomotor symptoms and somewhat irregular menses. She is sexually active and desires predictable menses and relief of hot flushes.

- A. Pill
- B. Extended cycle pills
- C. Copper IUD
- D. Progestin IUD
- E. Vasectomy
Case #6: Perimenopause

A. Pill
B. Extended cycle pill
C. Copper IUD
D. Progestin IUD
E. Vasectomy
Case #7, Acne with IUD

• 31 year old P0 medical student with PCOS who switched from the pill to a progestin IUD placed for contraception at the beginning of her third year due to her concerns of compliance on rotations. She is frustrated with the return of her high school comedonal acne.

• A. Remove progestin IUD, return to the pill
• B. Remove progestin IUD, place a copper IUD
• C. Keep IUD, add the pill
• D. Keep IUD, add Accutane
Case #7, Acne w/ IUD

A. Remove progestin IUD, return to the pill
B. Remove progestin IUD, place a copper IUD
C. Keep IUD, add the pill
D. Keep IUD, add Accutane
Case #8  Teen

• 17 year old P0 needing contraception. She has acne and irregular menses. She has used the pill in the past, but has difficulty taking it every day.

• A. Pill and set cell phone alarm
• B. Minipill
• C. Ring
• D. Extended cycle pills
• E. Progestin IUD
Case #8 Teen

A. Pill and cell phone alarm
B. Minipill
C. Ring
D. Extended cycle pills
E. Progestin IUD
Emergency contraception

• Morning after pill, Plan B
  • High doses of progestin, block/delays ovulation

• Effective for up to 5 days
  • Sooner the better
  • 85% in first 72 hours; 50% at 5 days
  • Available over the counter for men or women to buy.
  • $32-60 over the counter
  • May be free with prescription (ACA)
Levonorgestrel (Plan B)

- 2 pills, 75mcg each
- "generic"

- 1 pill, 150 mcg each
Emergency contraception (EC)

- All EC less effective with multiple coital episodes
  - Works to delay ovulation
- Levonorgestrel less effective in overweight women
  - BMI >25, 160-170#
    - Contraception, 2011 84(4)363
- Levonorgestrel less effective after 72 hours

- Ulipristal acetate, 30mg
  - Selective progesterone receptor modulator
  - Delays ovulation
  - Effective for up to 120 hours
  - Effective through BMI 30; less >BMI 35
  - Requires prescription /online; $50-70
PMS

- All pills help with physical symptoms of PMS
- 80% women referred to PMS clinic, do not have just PMS
- PMDD diagnosed with prospective charting, not symptom recall
- Yaz only pill shown to help with mood symptoms, PMDD
  - Decreased symptom scores more than placebo
  - Study evaluated for 3 months

- If mood symptoms persist, refer to primary care/psychiatrist

- Yonkers et al. Ob Gyn 2005; 106:493