Contraceptive Update 2012

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Disclosure – Nothing to Disclose
Objectives and Key Points

- Contraceptive choices available today.
  - Efficacy, benefits, risks, contraindications and actions for birth control methods

- Center for Disease Control Medical Eligibility Guidelines for birth control methods
United States Pregnancy Rates

**Intended Pregnancies:**
- Births 43%
- Miscarriage 9%

**Unintended Pregnancies:**
- Abortion 23%
- Birth 19%
- Miscarriage 6%
- Teens and poor are at a higher risk
- Increases the risk of problems for the Mom and Baby
Universal Reproductive-Age Women’s Health Recommendations

- Taking folic acid daily
- Maintaining a healthy diet and weight
- Getting regular exercise
- Quitting tobacco use
- Avoiding alcohol and recreational drugs
- Screening and proper management of chronic diseases
- Visiting your health care provider at recommended scheduled time periods
- Using effective contraception consistently
Increased Risk for Adverse Events with Unintended Pregnancy

- Breast Cancer
- Complicated CVD
- DM- Insulin Dependent
- Endometrial Cancer
- Ovarian Cancer
- Epilepsy
- HTN- Uncontrolled
- Bariatric Surgery < 2yr
- HIV/AIDS
- Gestational-Trophoblastic Disease, Malignant

Liver-Malignant tumors, Severe Decompensated Cirrhosis
Peripartum cardiomyopathy
Sickle Cell Disease
Solid Organ Transplant <2yr
Stroke
Lupus
Thrombogenic Mutations
Tuberculosis
## Contraceptive Effectiveness

<table>
<thead>
<tr>
<th>Method</th>
<th>Typical Use / Perfect Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No Method</td>
<td>85% / 85%</td>
</tr>
<tr>
<td>2. Spermicides alone</td>
<td>29% / 18%</td>
</tr>
<tr>
<td>3. Withdraw</td>
<td>27% / 4%</td>
</tr>
<tr>
<td>4. Fertility awareness</td>
<td>25% / ??</td>
</tr>
<tr>
<td>5. Sponge- parous</td>
<td>32% / 20%</td>
</tr>
<tr>
<td>6. Sponge-nulliparous</td>
<td>16% / 9%</td>
</tr>
<tr>
<td>7. Diaphragm</td>
<td>16% / 6%</td>
</tr>
<tr>
<td>8. Female condom</td>
<td>21% / 5%</td>
</tr>
<tr>
<td>9. Male condom</td>
<td>15% / 2%</td>
</tr>
<tr>
<td>10. Combined pill</td>
<td>8% / 0.3%</td>
</tr>
<tr>
<td>11. Progestin only pill</td>
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## Contraceptive Effectiveness

### Method

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<table>
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<tr>
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<tr>
<td>12.</td>
<td><strong>Ortho-Evra Patch</strong></td>
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<tr>
<td>13.</td>
<td><strong>Nuva Ring</strong></td>
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<tr>
<td>14.</td>
<td><strong>Depo-provera Injection</strong></td>
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<tr>
<td>15.</td>
<td><strong>Paragard IUD (copper)</strong></td>
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<td>16.</td>
<td><strong>Mirena IUD (progesterone)</strong></td>
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<td>17.</td>
<td><strong>Implanon/Nexplanon</strong></td>
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<td>18.</td>
<td><strong>Bilateral Tubal Ligation</strong></td>
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<tr>
<td>19.</td>
<td><strong>Vasectomy</strong></td>
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### Typical Use / Perfect Use

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</tr>
<tr>
<td>14.</td>
<td><strong>3% / 0.3%</strong></td>
</tr>
<tr>
<td>15.</td>
<td><strong>0.8% / 0.6%</strong></td>
</tr>
<tr>
<td>16.</td>
<td><strong>0.2% / 0.2%</strong></td>
</tr>
<tr>
<td>17.</td>
<td><strong>0.05% / 0.05%</strong></td>
</tr>
<tr>
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<td><strong>0.5% / 0.5%</strong></td>
</tr>
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United States Medical Eligibility for Contraceptive Use 2010

Resources

Center for Disease Control (CDC)
http://www.cdc.gov/reproductivehealth/unintendedpregnancy//USMEC.htm

World Health Organization (WHO)
http://www.who.int/reproductive-health/familyplanning/update.htm
United States Medical Eligibility Guidelines for Contraceptive Use

- **Category 1**: NO Restrictions for use.

- **Category 2**: Advantages of method outweigh the theoretical or proven risks - careful f/u may be required.

- **Category 3**: Theoretical or proven risks outweigh the advantage of a method - generally **NOT RECOMMENDED**.

- **Category 4**: Unacceptable health risk if method used.
Coitus Interruptus (Withdraw)

- **Action:** Prevents fertilization by preventing the contact between the spermatozoa and ovum.

- **Pregnancy Rate:** Typical 27% / Perfect 4%
Fertility Awareness Methods

- **Action**: Umbrella term for methods that use naturally occurring fertility signs to determine the fertile and infertile days of the menstrual cycle—Cervical mucus, Basal body temperature, Symptothermal
  
Pregnancy Rate: ????

- Lactation amenorrhea (more effective the first 6 months postpartum or before menses resumes. Typical effectiveness 25%
Male condom

- Barrier birth control
- Available in Latex, Polyurethane, Natural Lambskin (limited Sexually Transmitted Infection protection)

**Action:** Physical barrier, blocks passage of semen

**Pregnancy rate:** Typical 15% / Perfect 2%
Female Condom

- **Action:** Physical barrier that lines the vagina entirely and partially shields the perineum

- **Pregnancy Rate:** Typical 21% / Perfect 5%
Spermicides

- Creams, Jellies, Gels, Foams, Foaming Tablets, Suppositories, Vaginal Contraceptive Film

- **Action:** Surfactant Nonoxynol-9 which disrupts the integrity of the sperm cell membrane

- **Pregnancy rate:** Typical 29% / Perfect 18%
Barriers With Spermicide

- **Action**: Shield cervix and utilize chemical to kill the sperm.

- **Sponge, Cervical Cap, Diaphragm**
Sponge

- Over the counter

- Moisten with water and first intercourse, leave in 6 hours after intercourse. Do not leave in > 30 hours

- Pregnancy rate:
  - Parous: Typical 32% / Perfect 20%
  - Nulliparous: Typical 16% / Perfect 9%
Cervical Cap

- Silicone, 4 sizes. Must be fitted by a trained provider.

- Insert spermicide into cap and apply cap over cervix before first intercourse. Add additional spermicide to vagina with each repeated act of intercourse. Keep device in place 6 hours after last act of intercourse. Avoid continuous use > 48 hours.

- Pregnancy rate: Similar to diaphragm: Typical 16% /Perfect 6%
Diaphragm

- Must be fitted by trained provider
- Shallow rubber or silicone cap with a flexible rim placed in vagina to cover the cervix. Apply spermicide into diaphragm and insert into vagina before first intercourse. Apply additional spermicide into vagina with each additional act of intercourse. Leave in 6 hours after last episode of intercourse.

**Pregnancy rate:** Typical 16% / Perfect 6%
Combined Hormonal Contraception

- Oral contraceptives, Ortho-Evra patch, Nuva ring

- **Action**: Ovulation suppression, thickens cervical mucus, thins endometrial lining

- **New Contraceptive Approaches**: Quick start, Cycle day 1 start, Extended cycle (4 menses/year), Continuous cycle (no pill free interval, Shorter placebo interval, Low dose placebo interval.
Ortho-Evra Patch

- Transdermal, 3 layer device about the size of a matchbook with adhesive on one side of patch
- Releases Norelgestromin synthetic progesterone 150mcg/d and Ethinyl Estradiol estrogen 20mcg/d
- Apply one patch to abdomen, buttock, upper outer arm, upper torso(except breast) every week for 3 weeks. Follow by 1 patch free week
- If patch is forgotten <48 hours when due, apply patch ASAP and replace on regular schedule
- Decreased effectiveness in women>90kg (198#)
- Pregnancy rate: Typical 8% / Perfect 0.3%
Vaginal Nuva Ring

- Flexible 54mm ring releases Etonogestrel (synthetic progestin) 120mcg/d and Ethinyl Estradiol (estrogen) 15mcg/d
- Ring worn in vagina continuous for 3 weeks followed by 1 ring free week. Can take out for 2 hours at a time if desired during sex.
- Pregnancy rate: Typical 8% / Perfect 0.3%
Oral Contraceptives

- Available in MANY formulations that all work well for most patients
- *Pregnancy rate:* Typical 8% / Perfect 0.3%
USMEC for Combined Hormonal Contraception

- **Age:** Menarche to <40 yr = Category 1
  >40yr= Category 2

- **Parity:** Nulliparous & Parous = Category 1

- **Breastfeeding:** < 1 month postpartum=3
  >1 month =2

- **Non-breastfeeding Postpartum:** <21d = 3
  >21d =1

- **Post-abortion:** First and Second trimester=1
USMEC for Combined Hormonal Contraception

- **Smoking:**
  - <35 yr = 2
  - 35 yr and older, <15/d = 3
  - 35 yr and older, >15/d = 4

- **Obesity:**
  - BMI 30 or more = 2

- **Bariatric surgery:**
  - Restrictive procedures (lap-band) = 1
  - Malabsorbtion procedures (by-pass):
    - Combined pills = Category 3
    - Ring and Patch = Category 1
USMEC for Combined Hormonal Contraception

- **HTN without other risk factors:**
  - Controlled =3
  - Poorly Controlled (140-159/90-99) =3
  - Very Poorly Controlled (>160/>100) =4

- **HTN with vascular disease:** =4

- **Known thrombogenic mutations (Factor V Leiden, prothrombin mutation, protein S, protein C, Anti-thrombin deficiencies)** =4

- **History of Ischemic Heart Disease, Stroke History:** =4

- **History of Pregnancy Induced HTN:** =2
USMEC for Combined Hormonal Contraception

- **High risk DVT/PE:** =4

- **Family history DVT/PE:** =2

- **Surgery:**
  - With prolonged immobilization =4
  - Without prolonged immobilization =2
  - Minor surgery without immobilization =1
USMEC for Combined Hormonal Contraception

- **Breast:**
  - Benign breast disease/tumors = 1
  - Undiagnosed mass under w/u = 2
  - Family History of Breast Cancer = 1
  - Current Breast Cancer = 4
  - Hx. Breast Cancer > 5 yr. = 3

- **Anemias:**
  - Thalassemia = 1
  - Iron Deficiency = 1
  - Sickle Cell = 2
USMEC for Combined Hormonal Contraception

- **Gallbladder Disease:** Treated = 2/ Current = 3
- **Diabetes:** History of Gestational = 1
  Nonvascular with or w/o insulin = 2
  With Complications: 3,4
- **Various Conditions:** Endometriosis, Benign Ovarian Tumors, Gestational trophoblastic disease, Endometrial hyperplasia, Endometrial Cancer, Ovarian Cancer, Uterine Fibroids, PID, STI’s, HIV/AIDS, Tuberculosis, Thyroid disease = All Category 1!
USMEC Guidelines for Combined Hormonal Contraception

Drugs:

- Broad spectrum antibiotics = 1
- Antifungals = 1
- Antiparasitics = 1
- Anticonvulsants – Certain anticonvulsants (phenytoin, carbamazepine, barbiturates, primidone, topiramate, oxcarbazepine, lamotrigine in mono therapy) reduce the effectiveness of combined hormonal contraception. Using a preparation containing a minimum of 30 mcg EE should be used.

* See guidelines for additional details and conditions.
Emergency Contraceptive Choices

Plan B One Step: “Morning after pill”

Levonorgestrel (progesterone) 1.5 mg. taken ASAP within 72 hours. If vomiting occurs within 2 hours, consider another dose. Rule out existing pregnancy before dosing.

<17y.o. need Rx
17 and older is OTC

Pregnancy rate: ~5% if taken within 24 hours
~11% if taken within 72 hours

Action: Inhibits ovulation
Emergency Contraceptive Choices

Elipristal (Ella): Single 30 mg. dose
- Progesterone agonist/antagonist
- Take one ASAP within 5 days (120 hours) of episode
  Consider repeating dose if vomiting occurs within 3 hours of taking.
- Rx only
- Rule out existing pregnancy before dosing

Action: Delays ovulation, not an abortifacient.
Emergency Contraceptive Choices

Paragard IUD (Copper T):
- Insert within 5-7 days of exposure.
- Must rule out existing pregnancy
- Hormone free

Action: Inhibits ovulation or implantation—discussed in more detail later in presentation.
General IUD Information for Paragard and Mirena

- Pelvic Inflammatory Disease: PID risk low and confined to early weeks of insertion.
- Candidates: Mutiparous, Nulliparous if low STI risk, NO LOWER AGE RESTRICTION, patients desiring a long term, reversible method.
- PID Treatment with IUD: New Guidelines
  1. Leave IUD in.
  2. Treat infection.
  3. Close follow-up in 1-3 days.
  4. Remove IUD if not improved.
  5. Counsel on safer sex practices and condom use again.
General IUD Information for Paragard and Mirena

- **Contradindications to both IUD’s:**
  - Pregnancy
  - PID currently or within last 3 months
  - Current Sexually Transmitted Infection
  - Current Bacterial Vaginosis
  - Post-partum sepsis
  - Post-abortion sepsis
  - Purulent cervicitis
  - Undiagnosed abnormal vaginal bleeding
  - Pelvic/Genital Cancer
  - Uterine anatomic abnormalities
  - Allergy to components
General Information for Paragard and Mirena

- **IUD Actions:** Local sterile inflammatory response to a foreign body changes cellular make-up of endometrium, thickens cervical mucus inhibiting sperm transport and survival, decreased ovulation, alteration in uterine and tubal transport.
Paragard IUD

Paragard IUD:
- Easier to insert in Nulliparous
- Effective for 10 years
- Increased bleeding and cramping with menses common.

*Pregnancy rate:* Typical 0.8%/ Perfect 0.6%
Mirena IUD

Mirena IUD:
- Levonorgestrel (progesterone) 52mg, releases ~ 20mcg./day
- Reduces menstrual bleeding, cramping
- Amenorrhea common
- Effective for 5 years

Pregnancy Rate: Typical 0.2%/ Perfect 0.2%

Additional Mirena Contraindications: Current breast cancer, Hx breast cancer >5yr ago=Cat.3, Migraine with aura, Ischemic heart disease, liver malignant tumors
Progesterone Only Methods

- Mirena IUD
- Progestin Only Oral Contraceptive
- Nexplanon/Implanon Subdermal Implant
- Depo-Provera IM or SQ Injection
Progestin Only Oral Contraceptives

- Northindrone Progesterone 0.35 mg. Take one pill every day
- No estrogen
- No pill-free interval, needs to be taken within 1 hour window either way
- Start cycle day 1 (first day of menses)
- Safe for most women
- Most common complaint is irregular bleeding

Action: Some inhibition of ovulation, thickens and decreases amount of cervical mucus, decreased activity of cilia in fallopian tubes, alters endometrium

Pregnancy rate: Typical 8% / Perfect 0.3%
Implanon/ Nexplanon
Subdermal Implant

- Etonogestrel progesterone 68mg. Nexplanon also has radiopaque barium sulfate 15mg.
- Effective for 3 years
- Must be inserted by a provider who has completed a 3 hour mandatory training
- Quick and easy to insert, Easy to remove
- Single rod ~ the size of a match inserted with a preloaded trocar subdermally in the underside of the upper arm-Discrete
Implanon/ Nexplanon

- Major complaint: Irregular menstrual bleeding
- Action: Inhibits ovulation, alters endometrial structure, thickens cervical mucus
- Insert cycle days 1-5, after pregnancy r/o
- Pregnancy rate: Typical .05%/Perfect .05%
Depo-Provera Injection

- Medroxyprogesterone Acetate. 150mg for IM injection, 104 mg for SQ injection. Dosing for each every 12 weeks.
- Both formulations equally effective
- Start Cycle day 1-5 after pregnancy r/o
- If >13 weeks since last injection, do pregnancy test before dose
- Breastfeeding: <1mo. Postpartum= Cat.2 ; > 1 mo. Postpartum = Cat. 1
- Side effects: Weight gain, Irregular menses, amenorrhea, Bone loss which is greater with duration of use, but generally felt to be reversible after medication stopped
Depo-Provera

- **Action**: Ovulation suppression, inhibition of sperm capacitation, alters endometrium, thickens cervical mucus
- **Pregnancy rate**: Typical 3% / Perfect 0.3%
USMEC Guidelines for Progestin Only Contraception

**Age:**  Pill and Implant = Category 1  
Depo= <18 y.o or > 45 y.o.=Cat. 2

**All anemias:** Category 1

**Breast:**  Benign breast disease/mass=1
Family history breast cancer=1
Current breast cancer= 4
Hx. Breast cancer> 5yr.=3
Undiagnosed breast mass=2
Breastfeeding postpartum<1mo.=2/>1mo.=1

**Bariatric surgery:**  Injection and Implant= 1 any type
Pills- Restrictive procedure= 1
Pills- Malabsorptive procedure= 3
USMEC Guidelines for Progestin Methods

DVT/PE: History=Cat 2; Family Hx.=Cat 1

Major Surgery: With immobilization= Cat 2
No immobilization or minor=1

Diabetes: Gestational Hx= Cat 1
Insulin or Non-insulin dependent; with complications=2 (Depo=3)

Headaches: Nonmigraine=1
Migraine with aura=2 start/ 3 cont.
Pills-Migraine without aura=1 start/2 cont.
Injection/Implant- without aura=2

HTN: PIH Hx.=1 for all methods.
Controlled HTN=1(Pills, Implant); Cat. 2 Depo
Poorly controlled HTN (140-159/90-99)=1(Pills, Implant); 2 Depo
Very poorly controlled HTN (>160/>100)=2(Pills, Implant); 3 Depo

CVA: Starting method = 2(Pills, Implant): 3 (Depo) ; Continuing method= 3(Pills, Implant)
USMEC for Progestin Methods

**Throbogenic mutations:** 2

**Superficial Venous Thrombosis:** 1

**Drugs:** Certain anticonvulsants (phenytoin, carbamazepine, barbituates, primidone, topiramate, oxcarbazepine:

- Pills=3/ Depo=1/ Implant=2
- Rifampicin or rifabutin=
  - 3(Pills); 2(Implant); 1(Depo)
- Broad spectrum antibiotics, Antifungals, Antiparasitics=1
Sterilization Methods

"He said that birth control was the woman’s responsibility, so I castrated him."
Female Sterilization

- **Essure**: Microinsert device for tubal sterilization. Device placed transcervically through a hysteroscope.
Female Sterilization

**Bilateral Tubal Ligation:** Many types of procedures.

**Action:** Purposeful occlusion of fallopian tubes by surgical or mechanical disruption

**Pregnancy rate:** Typical 0.5% / Perfect 0.5%
Male Sterilization Vasectomy

**Action:** Blocking each vas deferens to prevent sperm passage out of body with ejaculate.

*Pregnancy rate:* Typical 0.15%/Perfect 0.10%
"WE'RE ALMOST THERE. HAPPY ANNIVERSARY, DEAR!"
Questions?

Thank You