Objectives

• Review reproductive trends:
  • Current fertility rates
  • Teen pregnancy rates
  • Contraceptive use

• Discuss hormonal contraceptive methods:
  • Physiology
  • Combined hormonal contraceptives
  • Depo-Provera
  • LARCs

• Discuss keys points for pediatricians:
  • Contraception initiation
  • Emergency contraception
  • Resources
Fertility Trends
Age at First Birth in Developed Countries

Figure 5. Average age of mother at first birth: Selected countries, 1970 and 2006

- Italy: 25.0 (1970), 28.7 (2006)

1Latest data are for 2005.
Age at First Birth in US

Figure 1. Average age of mother at first birth: United States, 1970–2006

Brief History of the Pill

• 1916: Margaret Sanger opens 1st US birth control clinic
• 1921: Sanger founds the American Birth Control League
• 1951: Sanger and Gregory Pincus meet at a dinner party
• 1952: The race to the pill is in full swing!
• 1953: Katherine McCormick funds Pincus/Rock research
• 1956: Large scale trials in Puerto Rico
• 1957: Pill approved for severe menstrual disorders…surge in women complaining of severe menstrual disorders
• 1960: Pill approved for contraception
• Ever after…controversy and progress
Figure 10. Percentage of births to women 15–44 years of age at interview that were unintended at the time of conception by both the mother and the father, by mother’s age at birth: United States, 2002
Teen Pregnancy
Teen Pregnancy

- 305,388 teen births in 2012 (15-19 yo)
- 25% of adolescent births are not first
- 90% by 15-19yo are unintended

- Fatherhood among 15-19yo boys: 19/1000
- Motherhood among 15-19yo girls: 42/1000

- State variations:
  - 10 states in Northeast have rate of ≤30
  - 11 states, mostly in Southeast have rate of ≥50
  - 54.1 in Louisiana in 2008
Figure 1. Teenage birth rates for 15-19 year olds by State, 2008

U.S. rate was 41.5 per 1,000 women aged 15–19 years

NOTE: Data for 2008 are preliminary.
New Orleans Neighborhoods

Teen birth rate = 
% of births to women under 20yo 
total number of births

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dixon</td>
<td>25.8</td>
</tr>
<tr>
<td>Iberville</td>
<td>22.5</td>
</tr>
<tr>
<td>Fischer Development</td>
<td>20.8</td>
</tr>
<tr>
<td>Hollygrove</td>
<td>19.9</td>
</tr>
<tr>
<td>Gentilly Terrace</td>
<td>17.1</td>
</tr>
<tr>
<td>Read Blvd West</td>
<td>16.8</td>
</tr>
<tr>
<td>St. Roch</td>
<td>16.5</td>
</tr>
<tr>
<td>Treme-Lafitte</td>
<td>16.3</td>
</tr>
<tr>
<td>Florida Area</td>
<td>15.9</td>
</tr>
<tr>
<td>Bywater</td>
<td>15.8</td>
</tr>
<tr>
<td>Seventh Ward</td>
<td>15.5</td>
</tr>
<tr>
<td>Lake Catherine*</td>
<td>15.2</td>
</tr>
<tr>
<td>Holy Cross</td>
<td>15.1</td>
</tr>
<tr>
<td>Behrman</td>
<td>15.0</td>
</tr>
<tr>
<td>U.S. Naval Base</td>
<td>15.0</td>
</tr>
<tr>
<td>Lower Ninth Ward</td>
<td>14.7</td>
</tr>
<tr>
<td>Pines Village</td>
<td>14.4</td>
</tr>
</tbody>
</table>
Teen Pregnancy

- 4 in 10 women are pregnant at least once by 20yo
  - 57% live births
  - 27% induced abortion
  - 16% miscarriage or stillbirth

- Highest adolescent birth rate in US was 1950s-1960s

- Since 1991 has decreased 35% for 15-17yo
Teen Pregnancy Reductions

14% due to Decrease in Sexual Activity

86% due to Increase in Contraceptive Use

Teen Pregnancy Decline
Contraceptive Use
Figure 4. Percent distribution of women aged 15–44 years, by current contraceptive status: United States, 2006–2008

NOTE: See Table 4 for more detail.
Teen Contraceptive Use

• 50% pregnancies occur <6 months of initial sex

• Many adolescents who currently use prescription contraceptives delayed seeing a physician for contraception until they had been sexually active ≥1 year

• Condom use among adolescents declines as they age
### Ever use of contraception among sexually active females 15-19yo, 2006-2010; 4,532 interviewed

<table>
<thead>
<tr>
<th>Method</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any method</td>
<td>98.9</td>
</tr>
<tr>
<td>Pill</td>
<td>55.6</td>
</tr>
<tr>
<td>Injectable</td>
<td>20.3</td>
</tr>
<tr>
<td>Emergency Contraception</td>
<td>13.7</td>
</tr>
<tr>
<td>Patch</td>
<td>10.3</td>
</tr>
<tr>
<td>Ring</td>
<td>5.2</td>
</tr>
<tr>
<td>Male Condom</td>
<td>95.9</td>
</tr>
<tr>
<td>Female Condom</td>
<td>1.5</td>
</tr>
<tr>
<td>Periodic Abstinence</td>
<td>15.0</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>57.3</td>
</tr>
<tr>
<td>Other</td>
<td>7.1</td>
</tr>
</tbody>
</table>

CDC/NCHS, National Survey of Family Growth
## Effectiveness of Family Planning Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Effectiveness</th>
<th>How to make your method most effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implant</td>
<td>0.05%*</td>
<td>After procedure, little or nothing to do or remember.</td>
</tr>
<tr>
<td>Reversible Intrauterine Device (IUD)</td>
<td>0.2% LNG, 0.8% Copper T</td>
<td>Vasectomy and hysteroscopic sterilization: Use another method for first 3 months.</td>
</tr>
<tr>
<td>Male Sterilization (Vasectomy)</td>
<td>0.15%</td>
<td></td>
</tr>
<tr>
<td>Female Sterilization (Abdominal, Laparoscopic, Hysteroscopic)</td>
<td>0.5%</td>
<td></td>
</tr>
</tbody>
</table>

**Least Effective**

- Male Condom: 18% per 100 women per year
- Female Condom: 21% per 100 women per year
- Withdrawal: 22% per 100 women per year
- Sponge: 24% parous women, 12% nulliparous women

**Fertility-Awareness Based Methods**

- January: 24% per 100 women per year
- Spermicide: 28% per 100 women per year

* The percentages indicate the number out of every 100 women who experienced an unintended pregnancy within the first year of typical use of each contraceptive method.
Most Desirable Contraceptives for Teens:

- IUD
- Implant

Options Available from Most Pediatric Offices:

- Pill
- Patch
- Ring
- Depo
- Condoms

Long-Acting Reversible Contraception

Other Hormonal Contraception
The Menstrual Cycle
Hypothalamic-Pituitary-Ovarian Axis

Figure 1

HYPOTHALAMUS

PITUITARY

OVARIES

GnRH

LH

FSH

Estradiol

Progesterone
Follicular phase

- GnHR → FSH and LH
- FSH → increases granulosa cells and FSH receptors → more estradiol and more effect of FSH
- LH → androstenedione, testosterone, estradiol released from theca cells in ovary
- Estradiol increases glandular cells in endometrium of uterus
- Dominant follicle emerges day 5-7
Ovulatory Phase

- Dominant follicle has increased receptors for LH.

- Unclear mechanism, but thought that estrogen’s negative feedback on hypothalamus switches to positive feedback once it reaches a certain level, thus triggering surge of LH and FSH.

- LH surge causes rupture of follicle (ovulation).
Luteal Phase

- Corpus luteum secretes progesterone (dominant) and estrogen to continue maturation of endometrium.
- Progesterone cause the elevation in body temperature.
- Without pregnancy and HCG levels to maintain it, corpus luteum regresses and progesterone and estrogen levels decline (14 days).
Combined Hormonal Contraception ("The Pill")
How the Pill Works—Negative feedback

• Estrogens
  • Suppresses LH and FSH, and thus inhibits ovulation

• Progestins
  • Suppresses midcycle peak of LH and FSH, and inhibits ovulation
  • Decreases sperm penetration through thickened cervical mucous

• Progestins provide the majority of pill’s contraceptive activity
COC Benefits

- **Contraceptive-related**
  - Reduced maternal deaths (11.8/100,000, and ~½ unintended)
  - Rapidly reversible (~2 week delay in return to ovulation)

- **Menstrual-related**
  - Decreased dysmenorrhea (↓ PGE release since ↓ endometrium)
  - Decreased blood loss
  - Regulation of menses
  - Decreased PMS symptoms
  - Decreased anovulatory bleeding (PCOS)
  - Reduced risk of post-ovulatory ovarian cysts
  - Improvement in menstrual migraines
COC Benefits

- General health-related
  - 34% less likely to develop epithelial ovarian cancer (after 10 years of monophasic use risk is reduced by 80%)
  - 40% reduced risk of endometrial cancer after 12 months (80% reduction after 10 years)
  - Decreased risk of benign breast lesions
  - Improved acne and hirsutism (suppresses ovarian production of testosterone and induced hepatic production of SHBG)
  - Reduced symptoms of endometriosis
  - Decreased risk of iron deficiency anemia
Progestins

• Natural progesterones are poorly absorbed, rapidly metabolized, and sedating at high doses

• 3 synthetic groups based on their metabolites:
  • Estranes
    • Norethindrone (Loestrin®, Gildess, Mini pills)
    • ½ life 8 hours
    • First generation developed
  • Gonanes
    • Levonorgestrel, Norgestrel, Desogestrel (Ortho Cylen®)
    • Longer half life so less break-through bleeding
    • Used in Plan B
  • Spironolactone analog
    • Drospirenone (Yasmin®)
    • May cause potassium retention
Estrogens

• Estrogen always ethinyl estradiol
  • More potent and long-acting than ovarian steroid estradiol
  • Allows for once a day dosing
  • Originally added to stabilize the endometrium

• Dosing
  • high dose (>50 mcg)
  • low dose (30 -35 mcg)
  • very low dose (10- 20 mcg)
Estrogen Contraindications

- Risk for cardiovascular disease
  - uncontrolled hypertension (160/100), history of CVA or CAD
- History of DVT, PE, or thromboembolic disorder (consider FHx)
- Diabetes with complications (vascular, nephropathy, neuropathy, retinopathy)
- Complicated valvular heart disease (pulm HTN, afib, SBE)
- Breast cancer
- Surgery w/ prolonged immobility; any leg surgery
- Liver dysfunction, liver tumor, cholestasis
  - active liver disease (LFT’s >2-3x normal) or hx of jaundice with OCPs
- Migraine with aura or focal neurologic symptoms
- Pregnancy or Breastfeeding
- Smoking if ≥35yo (smokers are 47% more likely to have BTB)
Thromboembolic Risk

- 1-4/100,000 in healthy women not pregnant and not taking OCPs

- 10-15/100,000 with older low EE pills with levonorgestrel or norethindrone

- 20-30/100,000 with newer low EE pills with desogestrel and gestodene

- 60/100,000 for pregnant women
Hormone Side Effects

**Estrogen**
- Nausea
- Headache
- Mastalgia
- Leukorrhea
- Thrombosis
- Fluid retention
- Telangiectasia

**Progestin**
- Breast size increase
- Headache
- Appetite increase
- Mood changes
- Acne
- Libido decrease
- Pruritis
Managing Nausea and Vomiting

- Often resolves after first few cycles
- Take at pill at night with food
- Avoid missed pills and doubling up
- Replace pills vomited within 2 hours
- Decrease estrogen content in pill
- Consider progestin-only method
Choosing the Right Pill

• All COCs provide equivalent efficacy if taken correctly

• No proven advantages for triphasics

• If patient tolerated OCP previously, restart comparable pill

• If switching due to side effects, change after 3 month trial
  • change to different progestin, or change dose of estrogen, depending on side effect experienced

• First time users, start with 30mcg and newer progestin:
<table>
<thead>
<tr>
<th>Brand Name®</th>
<th>EE dose mcg</th>
<th>Progesterone dose mg</th>
<th>Progesterone type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviane</td>
<td>20</td>
<td>LNG 0.1</td>
<td>Gonane</td>
</tr>
<tr>
<td>Loestrin 1/20</td>
<td>20</td>
<td>NETA 1</td>
<td>Estrane</td>
</tr>
<tr>
<td>Yaz (24/4)</td>
<td>20</td>
<td>Drsp 3</td>
<td>Drospirenone</td>
</tr>
<tr>
<td>Nordette</td>
<td>30</td>
<td>LNG 0.15</td>
<td>Gonane</td>
</tr>
<tr>
<td>Loestrin 1.5/30</td>
<td>30</td>
<td>NETA 1.5</td>
<td>Estrane</td>
</tr>
<tr>
<td>Yasmin</td>
<td>30</td>
<td>Drsp 3</td>
<td>Drospirenone</td>
</tr>
<tr>
<td>Ortho Cyclin</td>
<td>35</td>
<td>NGM 0.25</td>
<td>Gonane</td>
</tr>
<tr>
<td>Demulin</td>
<td>35</td>
<td>ED 1</td>
<td>Estrane</td>
</tr>
<tr>
<td>Lybrel (28)</td>
<td>20</td>
<td>LNG 0.09</td>
<td>Gonane</td>
</tr>
<tr>
<td>Seasonale (84/7)</td>
<td>30</td>
<td>LNG 0.15</td>
<td>Gonane</td>
</tr>
<tr>
<td>Seasonique (84/7)</td>
<td>30/10</td>
<td>LNG 0.15</td>
<td>Gonane</td>
</tr>
</tbody>
</table>

Ethinyl estradiol (EE); Ethynodiol diacetate (ED); Levonorgestrel (LNG); Norethindrone acetate (NETA); Norgestimate (NG); Norethindrone (NET)
<table>
<thead>
<tr>
<th>PRODUCT DESCRIPTION</th>
<th>BRAND/GEN</th>
<th>LIMITS &amp; RESTRICTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>drospirenone-ethinyl estradiol tab 3-0.03 mg</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>ELLA TAB 30 MG</td>
<td>BRAND</td>
<td>QL 4 / 365 days</td>
</tr>
<tr>
<td>ethynodiol diacetate &amp; ethinyl estradiol tab 1 mg-35 mcg</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>IMPLANON IMPLANT 68 MG</td>
<td>BRAND</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>levonorg-eth est tab 0.15-0.03mg(8/4) &amp; eth est tab 0.01mg(?)</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>levonorgestrel &amp; eth estradiol (tab 0.1 mg-20 mcg, tab 0.15 mg-30 mcg)</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>levonorgestrel &amp; ethinyl estradiol (91-day) tab 0.15-0.03 mg</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>levonorgestrel tab 0.75 mg</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 4 / 365 days</td>
</tr>
<tr>
<td>levonorgestrel-eth estr tab 0.05-30/0.075-40/0.125-30mg-mcg</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>medroxyprogesterone acetate im susp 150 mg/ml</td>
<td>generic</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 / claim</td>
</tr>
<tr>
<td>MIRENA IUD 20 MCG/24HR</td>
<td>BRAND</td>
<td>GL Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDD 1 per day</td>
</tr>
<tr>
<td>NECON 1/50 (28) TAB 1-50 MG-MCG</td>
<td>BRAND</td>
<td>GL Female</td>
</tr>
</tbody>
</table>
### Louisiana Healthcare Connections (Bayou Health/Medicaid Provider)

<table>
<thead>
<tr>
<th>PRODUCT DESCRIPTION</th>
<th>BRAND/GEN</th>
<th>LIMITS &amp; RESTRICTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>drospirenone-ethinyl estradiol tab 3-0.03 mg</td>
<td>generic</td>
<td>GL Female 1 per day</td>
</tr>
<tr>
<td>ELLA TAB 30 MG</td>
<td>BRAND</td>
<td>QL 4 / 365 days</td>
</tr>
<tr>
<td>ethynodiol diacetate &amp; ethinyl estradiol tab 1 mg-35 mcg</td>
<td>generic</td>
<td>GL Female 1 per day</td>
</tr>
<tr>
<td>IMPLANON IMPLANT 68 MG</td>
<td>BRAND</td>
<td></td>
</tr>
<tr>
<td>levonorg-eth est tab 0.15-0.03mg(84) &amp; eth est tab 0.01mg(?)</td>
<td>generic</td>
<td>QL 91 / claim</td>
</tr>
<tr>
<td>levonorgestrel &amp; ethinyl estradiol (tab 0.1 mg-20 mcg, tab 0.15 mg-30 mcg)</td>
<td>generic</td>
<td>GL Female 1 per day</td>
</tr>
<tr>
<td>levonorgestrel &amp; ethinyl estradiol (91-day) tab 0.15-0.03 mg</td>
<td>generic</td>
<td>QL 91 / claim</td>
</tr>
<tr>
<td>levonorgestrel tab 0.75 mg</td>
<td>generic</td>
<td>GL Female 1 per day</td>
</tr>
<tr>
<td>levonorgestrel-eth estra tab 0.05-30/0.075-40/0.125-30mg-mcg</td>
<td>generic</td>
<td>GL Female 1 per day</td>
</tr>
<tr>
<td>medroxyprogesterone acetate im susp 150 mg/ml</td>
<td>generic</td>
<td>GL 1 / claim</td>
</tr>
<tr>
<td>MIRENA IUD 20 MCG/24HR</td>
<td>BRAND</td>
<td></td>
</tr>
<tr>
<td>NECON 1/50 (28) TAB 1-50 MG-MCG</td>
<td>BRAND</td>
<td>GL Female</td>
</tr>
</tbody>
</table>
## Drug-Drug Interactions

Estrogens and progestins are metabolized by the liver and excreted by the kidneys.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Mechanism</th>
<th>Effect</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine, Phenytoin, Topiramate, Phenobarbital, Rifampin, Griseofulvin</td>
<td>Increases EE and progestin metabolism</td>
<td>Decreased contraceptive efficacy</td>
<td>Higher doses of COC, skip placebos, use condoms</td>
</tr>
<tr>
<td>Lamotrigine, Valproic Acid</td>
<td>EE induces glucuronidation (increased drug metabolism)</td>
<td>Decreased drug levels</td>
<td>Avoid EE, may try progestin only methods, monitor drug levels and SEs</td>
</tr>
<tr>
<td>Olanzapine, immunosuppression</td>
<td>EE inhibits CYP1A2 (which metabolizes these medications)</td>
<td>Increased drug levels</td>
<td>Monitor drug levels and SEs</td>
</tr>
</tbody>
</table>
Initiating COCs

• Sunday start (on Sunday after menses)
  • Avoids weekend menses
  • Not effective for first 2 weeks

• First day (of menses) start

• Quick (visit day) start
  • not effective for 2 weeks
  • negative urine hcg
  • no unprotected sex past 2 weeks
    • not teratogenic
    • repeat pregnancy test in 2 weeks to confirm not pregnant
Patient requests new method of contraception

First day of LMP five or fewer days ago?

Yes

Urine pregnancy test negative
Unprotected sex since LMP?

No

Initiate method today; advise use of backup method during first week

Yes

Five or fewer days ago

No

Advise that negative pregnancy test is not conclusive

Yes

Offer hormonal EC today

Patient wants to start new method today?

No

Provide prescription for chosen method

Yes

Initiate method today
The Transdermal Patch: Ortho Evra®

- Thin, beige, plastic patch (1.75” x 1.75”)
- Sticks to skin and releases hormones into blood stream
  - Contains 6mg norelgestromin and 0.75mg EE
  - Releases 150mcg norelgestromin and 20mcg EE daily
- Each patch worn 1 week, 3 weeks in a row
- Patch free week results in uterine bleeding
- Upper torso, buttock, upper outer arm, or lower abdomen
Patch Advantages and Disadvantages

- Ease of use
- Grace period
  - 48 hours to apply 2\textsuperscript{nd} or 3\textsuperscript{rd} patch in a cycle
- Visibility and appearance
  - beige doesn’t match all skin tones
- Skin irritation
  - painful removal
  - sticky residue
- Risk of VTE (fatal events similar to 35mcg OC users)
- Effectiveness decreases from 98\% to 92\% with higher weight (>90kg)
NuvaRing

• Silicone ring (one size fits all)

• Daily hormone dose
  • ethinyl estradiol 15 mcg
  • etonogestrel 120 mcg

• Placed in vagina for 3 weeks followed by “ring free” week

• Ring free week results in uterine bleeding
Ring Advantages and Disadvantages

• Advantages
  • Ease of use
  • Privacy
  • Effectiveness

• Disadvantages
  • Remembering to insert and remove
  • Possible vaginal wetness or irritation
  • Unease with insertion or removal
Depo-Provera
Depo-Provera Mechanism of Action

- Suppresses levels of FSH and LH and eliminates LH surge, thus inhibiting ovulation
- Thickens cervical mucous that prevents sperm penetration
- Makes endometrium atrophic and nor receptive to implantation
- Effective 10-14 days after initiation
Advantages

• No estrogens

• Absence of menstrual bleeding
  • 10-30% amenorrheic after 1\textsuperscript{st} injection
  • 40-50% amenorrheic after 4\textsuperscript{th} injection

• Use can be kept relatively private

• Improvement in menstrual symptoms

• Decreases risk of PID
Disadvantages

• Cannot discontinue immediately (complete clearance takes 6-8 months)

• Return visits required every 3 months

• Weight gain

• Decreased bone mineral density
Bone Density

- Due to hypoestrogenism

- Rapid in first 2 years of use (1-3%/yr), but regained by 30 months after discontinuation in both adult and adolescent women

- No negative effect on fracture risk, but stress fracture risk increased in one study

- Insufficient evidence of achievement of peak bone mass

- “There should be no restriction on the use of DMPA, including no restriction on duration of use, among women 18-45 who are otherwise eligible to use this method” –WHO

- May not want to use longterm if medical comorbidities that predispose to osteoporosis and fracture such as: chronic corticosteroid use, disorders of bone metabolism, strong FHx of osteoporosis, or anorexia nervosa
Weight Gain

- 12-19% of users discontinue because of weight gain

- Weight gain not consistent for all women
  - Higher weight gain among AA adolescents compared to whites
  - Brazilian study showed 9 lb gain over 5 years of use
  - Chinese study showed no weight gain after 1 year of use
  - One study showed 56% of teens lost weight or gained less than 5% of their baseline, and 25% gained more than 10% of their baseline

- Only randomized trial showed no significant weight gain compared to placebo
LARCs

Long-Acting Reversible Contraception
LARCs

• AAP update (2014) on teen pregnancy prevention advised: 1st-line contraceptive choice for adolescents who choose not to be abstinent is a LARC.

• Only 4.5% of sexually active adolescents between 15 and 19 years used LARCs in 2009.
Nexplanon

- 68mg Etonogestrel Implant (subdermal)
- Radiopaque
- Lasts for 3 years
- Can be removed at any time
- 10% discontinue for unfavorable bleeding patterns
Nexplanon Insertion
Nexplanon Insertion
Mirena

- 52mg Levonorgestrel IUD
- Radiopaque
- Lasts for 5 years
- Can be removed at any time
- Higher expulsion in adolescents, more painful insertion
Mirena Mechanism of Action

Mirena prevents pregnancy, most likely in several ways (as highlighted below in teal). Most likely, the different actions work together to prevent pregnancy.

- **Mirena**: When inserted into the uterus, Mirena releases a hormone that prevents sperm from reaching the egg. It also thins the uterine lining and thickens cervical mucus, making it difficult for sperm to reach the egg.

**Mirena is placed in the uterus, not the vagina, so neither you nor your partner should be able to feel it during sex. Sometimes your partner may feel the threads. If this occurs, your healthcare provider may be able to help.**

**Inhibits sperm from reaching/fertilizing egg**: Two thin threads are attached to the stem of Mirena that help ensure it remains properly placed. These threads are the only part you should be able to feel when Mirena is positioned correctly. You should do a monthly self-check to make sure Mirena is still positioned correctly. Be sure to ask your healthcare provider to explain how.

**Thins uterine lining**: Mirena causes the uterine lining to thin, reducing the likelihood of implantation.

**Thickens cervical mucus to prevent sperm from entering uterus**: Mirena increases the viscosity of cervical mucus, making it difficult for sperm to penetrate.
Mirena and AUB

Graphic representation showing the thinning of the uterine lining with and without Mirena.

- Without Mirena
- With Mirena

Days of cycle

Ovulation

Menstrual flow
Initiating Contraception
History and Counseling

- Take a full medical and sexual history
- Explore personal circumstances affecting method choice and compliance
- Discuss side effects candidly and validate concerns
- Encourage dual condom/contraception use
- Provide prescription for EC or instruct on OTC access
Emergency Contraception

- Plan B One Step contains 1.5mg levonorgestrel

- Efficacy of EC chiefly lies in its ability to reduce the migration and function of spermatozoa and its ability to inhibit ovulation (pre-fertilization mechanisms).

- Evidence does not support the hypothesis that EC changes endometrial receptivity or encumbers implantation (especially since EC works best soon after sexual intercourse and still carries a 25% failure rate).
Reproductive Care for Minors

• Currently, no state or federal laws require minors to get parental consent in order to get contraception

• Two federal programs - Title X and Medicaid - protect teens’ privacy and prohibit parental consent requirements for teens seeking contraception

• Practices may have different policies regarding contraception for minors. Consider insurance charges, billing codes used, etc.
Bedsider.org

The explorer is a place to learn about all your birth control options. We cover every available method.
Local Family Planning Resources

- Planned Parenthood
- Tulane Drop-In Clinic
- LSU Adolescent Clinic (Tiger Care)
- Delgado Personal Health Center Medical Clinic
- St. Thomas Community Health Center
- Metairie Medical Clinic
- Marrero Medical Clinic
Keys to Counseling

• Anticipatory guidance on side effects

• Condoms, condoms, condoms!!!

• Close follow-up
Questions and Comments
References

- Contraceptive Technology, 19th Ed
- Adolescent Reproductive and Sexual Health Education Project
- Gina Succato, MD, MPH, University of Pittsburgh
- Centers for Disease Control
- World Health Organization
- New Orleans Health Department
- Google Images