LONG ACTING REVERSIBLE CONTRACEPTIVES (LARC) FOR ADOLESCENTS

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LARC FOR ADOLESCENTS

* OBJECTIVES

* To review the advantages of LARC’s for adolescents, specifically the single implant rod and intra-uterine device.

* To describe the pros and cons of both methods to improve candidate selection for LARC in adolescents.

* To increase Pediatric Providers comfort with these highly effective methods of adolescent contraception.
Unintended Pregnancy in the US

6.7 MILLION PREGNANCIES over one year

Intended: 51%

Unintended 49%

Unintended births

51%

23%

21%

5%

Elective abortions

Fetal losses

High Rate of Contraceptive Misuse

1 million pregnancies/year due to misuse or discontinuation of OCs

Month 3 and 3 Pills Missed

High Rate of OC Discontinuation

18% of OC users discontinued by 6 months

- No Need for Contraception: 23%
- Side Effects: 46%
- Method-Related Problems: 14%
- Other: 17%

Typical Vs. Perfect Use

% of Women w/ Unintended Pregnancy within 1st Year of Use

- **Combined Pill (8%)**: Typical use = 0.3, Perfect use = 0.3
- **Patch (Ortho-Evra) (8%)**: Typical use = 0.3, Perfect use = 0.3
- **Ring (NuvaRing) (8%)**: Typical use = 0.3, Perfect use = 0.3
- **Injectable (Depo-Provera)**: Typical use = 3, Perfect use = 0.3
- **ParaGard (Copper T)**: Typical use = 0.8, Perfect use = 0.6
- **Implant (Norplant)**: Typical use = 0.05, Perfect use = 0.05
- **Female Sterilization (0.5)**: Typical use = 0.5, Perfect use = 0.5

*Estimates Only

Satisfaction with Contraceptive Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>% Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal Ring</td>
<td>87</td>
</tr>
<tr>
<td>IUD</td>
<td>86</td>
</tr>
<tr>
<td>Injection</td>
<td>80</td>
</tr>
<tr>
<td>OC</td>
<td>79</td>
</tr>
<tr>
<td>Patch</td>
<td>75</td>
</tr>
<tr>
<td>Condoms</td>
<td>60</td>
</tr>
<tr>
<td>Other</td>
<td>52</td>
</tr>
</tbody>
</table>

MOST SATISFIED
- 87% for Vaginal Ring
- 86% for IUD

LEAST SATISFIED
- 60% for Condoms
- 52% for Other

Nexplanon
Implanon

Single Implantable rod placed under local anesthesia in medial upper arm.
Progestin only (estrogen free) efficacy for 3 years and rapidly reversible (one week) after removal.
New inserter decreases non placement of rod and depth of insertion. Rod now has a radio-opaque strip.
Features of Contraceptive Implants

- Highly effective
- Not motivation dependent
- Can be used during lactation
- Discreet, virtually invisible
- Rapidly reversible

Features of Contraceptive Implants
(continued)

- Stable hormone levels
- Extended protection
- Contain no estrogen
- Safe

Limitations of Contraceptive Implants

- Can cause irregular bleeding
- Requires clinician visits for insertion and removal
- Does not protect from STDs
Long-acting Protection

- Indicated for the prevention of pregnancy
- Long-acting; up to 3 years
- New implant can continue beyond 3 years
- Reversible at any time
### Pharmacology

<table>
<thead>
<tr>
<th>Class</th>
<th>Progestin-only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route</td>
<td>Subdermal</td>
</tr>
<tr>
<td>Formulation</td>
<td>Implantable rod; 68 mg etonogestrel</td>
</tr>
<tr>
<td>Bioavailability</td>
<td>~100%</td>
</tr>
<tr>
<td>Metabolism</td>
<td>Hepatic via CYP3A4</td>
</tr>
<tr>
<td>Half-life</td>
<td>~ 25 h</td>
</tr>
<tr>
<td>Excretion</td>
<td>Primary urine; some fecal</td>
</tr>
</tbody>
</table>

ANON. *Obstet Gynecol.* 2007
Mechanism of Action

- Suppresses ovulation
- Increases cervical mucus viscosity
- Alters endometrium

IMPLANON™ Physician insert, 2006
Clinical Expectations

• No anemia
• No reduction in bone mineral density
• No increased risk of DVT
• Little pain at insertion site
• Changes in bleeding pattern
• Drug-drug interactions

more…
Clinical Expectations (continued)

• Associated non-contraceptive benefits
  * Acne may decrease
  * Dysmenorrhea may improve

• Minor weight change

• Mild side effects:
  * Breast pain
  * Headache
Changes in Bleeding Pattern

“Irregularly irregular” cycles, including:

- Frequent irregular bleeding
- Heavy menstrual flow
- Prolonged bleeding
- Amenorrhea
- Spotting
- Unpredictability of bleeding pattern over time

Bleeding Patterns are Unpredictable

US Data
n=330

Management of Bleeding

- Few data available
- Considerations
  - Ethinyl estradiol
  - NSAIDs
  - Combination OCs
  - Watchful waiting

Meirik O. Hum Reproduct Update. 2003
Weisberg E. Hum Reprod. 2006
Bleeding Does Not Result in Anemia

Mean Hgb (g/dL)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>24 Months</th>
<th>36 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td>11.8</td>
<td>12.2</td>
<td>12.4</td>
</tr>
<tr>
<td><strong>N=926</strong></td>
<td></td>
<td><strong>N=663</strong></td>
<td><strong>N=535</strong></td>
</tr>
</tbody>
</table>

### Drug-drug Interactions

#### Some CYP3A Inhibitors and Inducers

<table>
<thead>
<tr>
<th>Potent Inhibitors</th>
<th>Moderate Inhibitors</th>
<th>Inducers</th>
</tr>
</thead>
<tbody>
<tr>
<td>amiodarone (Cordarone)</td>
<td>amprenavir (Agenerase)</td>
<td>carbamazepine (Tegretol)</td>
</tr>
<tr>
<td>atazanavir (Reyatz)</td>
<td>aprepitant (Emend)</td>
<td>efavirenz (Sustiva)</td>
</tr>
<tr>
<td>cisapride (Propulsid)</td>
<td>ciprofloxacin (Cipro)</td>
<td>nevirapine (Viramune)</td>
</tr>
<tr>
<td>clarithromycin (Biaxin)</td>
<td>diltiazem (Cardizem)</td>
<td>phenytoin (Dilantin)</td>
</tr>
<tr>
<td>itraconazole (Sporanox)</td>
<td>erythromycin</td>
<td>phenobarbital</td>
</tr>
<tr>
<td>ketoconazole (Nizoral)</td>
<td>fluconazole (Diflucan)</td>
<td>rifabutin (Mycobutin)</td>
</tr>
<tr>
<td>nefazodone (Serzone)</td>
<td>fluvoxamine (Luvax)</td>
<td>rifapentine (Priftin)</td>
</tr>
<tr>
<td>neflinavir (Viracept)</td>
<td>fosamprenavir (Lexiva)</td>
<td>rifampin (Rifadin)</td>
</tr>
<tr>
<td>nelfinavir (Viracept)</td>
<td>grapefruit juice</td>
<td>St. John’s Wort</td>
</tr>
<tr>
<td>ritonavir (Norvir)</td>
<td>norfloxacin (Noroxin)</td>
<td>topiramate (Topamax)</td>
</tr>
<tr>
<td>telithromycin (Ketek)</td>
<td>verapamil (Calan)</td>
<td>&gt; 100 mg/d</td>
</tr>
<tr>
<td>troleandomycin (TAO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>voriconazole (Vfend)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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*ANON. Obstet Gynecol. 2007*

Schindlbbeck C. *Arch Gynecol Obstet.* 2006.
Minor Weight Change

Mean weight change less than 4 pounds

At year 1 = 2.8 lbs
At year 2 = 3.7 lbs

Implanon Physician Insert, 2006
## Insertion Site Symptoms

<table>
<thead>
<tr>
<th>Condition</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>48</td>
<td>3.4</td>
</tr>
<tr>
<td>Redness</td>
<td>6</td>
<td>0.4</td>
</tr>
<tr>
<td>Swelling</td>
<td>5</td>
<td>0.4</td>
</tr>
<tr>
<td>Hematoma</td>
<td>4</td>
<td>0.3</td>
</tr>
<tr>
<td>Expulsion</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

N = 1,409

Organon data on file.
## Adverse Effects

<table>
<thead>
<tr>
<th>All Studies</th>
<th>N=942</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleeding irregularities(^1)</td>
<td>11.0%</td>
</tr>
<tr>
<td>Emotional Lability(^2)</td>
<td>2.3%</td>
</tr>
<tr>
<td>Weight Increase</td>
<td>2.3%</td>
</tr>
<tr>
<td>Headache</td>
<td>1.6%</td>
</tr>
<tr>
<td>Acne</td>
<td>1.3%</td>
</tr>
<tr>
<td>Depression(^3)</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

\(^1\) Includes frequent heavy, prolonged spotting and other patterns of bleeding irregularity.

\(^2\) Among US subjects, 6.1% experienced emotional lability that led to discontinuation.

\(^3\) Among US subjects, 2.4% experienced depression that led to discontinuation.
Continuation ‘Real-Life’

- 1 Year: 75%
- 2 Years: 59%
- 3 Years: 47%

Lakha F. Contraception. 2006
Discontinuation ‘Real-Life’

Reasons given for Implanon removal before completion of the 3-year period (n=60)

Amenorrhoea 3%
Planning pregnancy 15%
Contraception no longer needed 7%
Weight gain 10%
Mood swings 10%
Other 15%
Bleeding irregularly 40%

Agrawal A. J Fam Plann Reprod Health Care. 2005
Implanon Physician Insert, 2006
Patient Counseling Topics

- Description of implant
- Efficacy
- Return to fertility
- Bleeding patterns
- Managing potential side effects
- Overview of insertion and removal
- Follow-up
Patient Follow-up

* Expect bleeding irregularities
* Plan on removal after 3 years, or at anytime
* Make sure the implant is palpable
* Report any adverse effects immediately

more…
Patient Follow-up (continued)

- Discuss use of interacting medications now and in future
- Encourage healthy lifestyle
  - Safe sex (does not prevent STIs/HIV)
  - No smoking
Insertion Timing

* Standard or new start
  * Insertion within 5 days of initiation of menses

* Switching from combined OC
  * Insertion within 7 days of last active tablet

more…
Switching from progestin-only method

- Insertion any day with progestin only-pill
- Same day as IUD or implant removal
- On due date for next contraceptive injection

more…
- After abortion
  - Within 5 days of 1st trimester abortion
  - Within 6 weeks of 2nd trimester abortion
- After childbirth
  - Within 6 weeks
Insertion Timing (continued)

- Considered safe with lactation after 6 weeks
- Clinical study: low concentrations present in milk; no associated adverse events

Implanon physician Insert
Diaz S. Contraception. 2002.
‘Quick Start’ Method

- Inserted at any time during menstrual cycle
- Use of back-up barrier contraception for 7 days
- If inserted when emergency contraception is used, do urine pregnancy test in 3 weeks
Advantages

• High contraceptive effectiveness
• No need for user compliance
• Long life-span
• Minimal requirement for medical follow-up
• Low, stable serum hormone levels minimizing metabolic effects
• Rapid reversibility

Power J. Cochrane Database Syst Rev. 2007
Disadvantages

• High initial cost
  ▪ Counsel properly to prevent early discontinuation

• Insertion/removal requires visit to trained clinician
  ▪ All prescription contraceptives (OCs, Injections, Rings, Patches, IUDs) also need health care provider visit

more…

Power J. Cochrane Database Syst Rev. 2007
Disadvantages (continued)

- Misperceptions surrounding implant history
  - Proven track record of single-rod implant has overcome past obstacles

Power J. *Cochrane Database Syst Rev.* 2007
Characteristics of Intrauterine Contraception

- Highest patient satisfaction among methods
- Rapid return of fertility
- Safe
- Immediately effective
- Long-term protection
- Highly effective

IUCs Available in the United States

- LNG IUC
  - 20 mcg levonorgestrel/day
  - Approved for 5 years’ use

- Copper T 380A IUD
  - Copper ions
  - Approved for 10 years’ use
Dispelling Common Myths About IUCs

In fact, IUCs:

* Are not abortifacients
* Do not cause ectopic pregnancies
* Do not cause pelvic infection
* Do not decrease the likelihood of future pregnancies
* Are not large in size

more…

Dispelling Common Myths About IUCs (continued)

In fact, IUCs:

* Can be used by nulliparous women
* Can be used by women who have had an ectopic pregnancy
* Do not need to be removed for PID treatment
* Do not have to be removed if actinomyces-like organisms (ALO) are noted on a Pap test

Mechanism of Action: Copper T IUD

* Primary mechanism is prevention of fertilization
  * Reduce motility and viability of sperm
  * Inhibit development of ova
* Inhibition of implantation is a secondary mechanism

Mechanism of Action: LNG IUC

- Primary mechanism is fertilization inhibition
  - Cause cervical mucus to thicken
  - Inhibit sperm motility and function
- Inhibition of implantation is a secondary mechanism

## Efficacy: 1st Year Failure Rates of Select Contraceptives (Typical Use)

<table>
<thead>
<tr>
<th>Contraception</th>
<th>Failure Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUC-LNG</td>
<td>0.2</td>
</tr>
<tr>
<td>IUD-Copper T</td>
<td>0.8</td>
</tr>
<tr>
<td>Injectable (DMPA)</td>
<td>6</td>
</tr>
<tr>
<td>Pill-Combined</td>
<td>9</td>
</tr>
<tr>
<td>Condom-Male</td>
<td>18</td>
</tr>
<tr>
<td>Spermicidies</td>
<td>28</td>
</tr>
<tr>
<td>No Contraception</td>
<td>85</td>
</tr>
</tbody>
</table>

Safety: IUCs Do Not Cause PID

- PID incidence for IUC users is similar to that of the general population
- Risk is increased only during the first month after insertion
- Preexisting STI at time of insertion, not the IUC itself, increases risk

Safety: IUC Does Not Cause Infertility

- IUC is not related to infertility
- Chlamydia is related to infertility

Tubal infertility by previous copper T IUD use and presence of chlamydia antibodies, nulligravid women

Safety: IUCs May Be Used by HIV-Positive Women

- No increased risk of complications compared with HIV-negative women
- No increased cervical viral shedding
- WHO and CDC Category 2 rating

Safety: IUCs May Be Used in Nulligravid Women

- No evidence of increased infertility in nulliparous users of IUCs
- Risk of PID and subsequent infertility is dependent on non-IUC factors

<table>
<thead>
<tr>
<th>Reason</th>
<th>LNG IUC termination rate per 100</th>
<th>OC termination rate per 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain*</td>
<td>6.66</td>
<td>0</td>
</tr>
<tr>
<td>Hormonal</td>
<td>4.95</td>
<td>9.75</td>
</tr>
<tr>
<td>Bleeding</td>
<td>2.52</td>
<td>0</td>
</tr>
<tr>
<td>Spotting</td>
<td>0.0</td>
<td>1.25</td>
</tr>
<tr>
<td>Expulsion</td>
<td>1.20</td>
<td>NA</td>
</tr>
<tr>
<td>Other medical</td>
<td>2.13</td>
<td>1.09</td>
</tr>
</tbody>
</table>

*Statistically significant difference

<table>
<thead>
<tr>
<th>During insertion</th>
<th>First few days</th>
<th>First few months</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable pain and/or cramping</td>
<td>Light bleeding</td>
<td>Inter-menstrual bleeding</td>
<td>Copper T: Heavier or prolonged menses</td>
</tr>
<tr>
<td>Vaso-vagal reactions</td>
<td>Mild cramping</td>
<td>Cramping</td>
<td>LNG: Gradual decrease in menstrual flow</td>
</tr>
</tbody>
</table>

# IUC Non-contraceptive Benefits

<table>
<thead>
<tr>
<th></th>
<th>Protection against endometrial cancer</th>
<th>Alternative to hysterectomy or endometrial ablation</th>
<th>Treatment of heavy bleeding/dysmenorrhea</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Copper T IUD</strong></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LNG IUC</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

IUC Is Cost Effective

- Higher one-time startup, but incurs substantially lower cost over time
- Both IUC manufacturers offer patient payment plan options
- Bulk discounts are available to clinicians

I.U.C. – Skyla

Skyla™
(levonorgestrel-releasing intrauterine system)
13.5 mg
Costs for Patients

* Patient costs are a factor in choosing contraceptive method
* Up-front costs concern some women
* Costs of side effects associated with some contraceptives are high compared with those for an IUC
* Public clinics and pharmaceutical company patient assistance programs can be explored for low-income or uninsured patients
Screening: Poor Candidates for Intrauterine Contraception

* Known or suspected pregnancy
* Puerperal sepsis
* Immediate post septic abortion
* Unexplained vaginal bleeding
* Cervical or endometrial cancer

more…

WHO. 2009.
Screening: Poor Candidates for Intrauterine Contraception (Continued)

- Uterine fibroids that interfere with placement
- Uterine distortion (congenital or acquired)
- Current PID
- Current purulent cervicitis, chlamydia, or gonorrhea
- Known pelvic tuberculosis

WHO. 2009.
IUC for Postpartum Use

- May be safely inserted in postpartum women
- LNG-IUD and CuT can safely be placed within 10 minutes of placental delivery.
- Both IUDs can be used between 10 minutes and 4 weeks.
- Some evidence to suggest higher expulsion should not deter insertion in the post-partum period.

CDC. MMWR. 2010.
IUC Use During Lactation

- Effectiveness not decreased
- Uterine perforation risk unchanged
- Expulsion rates unchanged
- Decreased insertional pain
- Reduced rate of removal for bleeding and pain
- LNG comparable to copper T in breastfeeding parameters

IUC Use for Adolescents

* Appropriate for properly selected and counseled adolescents
* Follow-up and side-effect monitoring important
* Encourage use of condoms with new partners

Case Presentation: Nulligravid Adolescent

* “Anna,” 17-year-old high-school senior
* Has been sexually active with boyfriend for 3 months
* Has been using condoms for birth control
* Does not want to use hormonal method of contraception

Consider: Copper T IUD or LNG IUS*

* After first few months, very little LNG enters the circulation.
Nulligravid Adolescent Case: Clinical Considerations

- Insertion difficulty (smaller os and uterus than in parous woman)
- Insertion pain
- Possible increased risk of STIs (chlamydia) and PID (because of age <25 years)

Insertion Pain Management

- A variety of ways of reducing pain during IUC insertion have been investigated.
- Evidence on pain relief during the IUC insertion procedure is mixed.

Nulligravid Adolescent Case: Practice Tips

To reduce insertion pain:
- **Misoprostol:**
  - 200–800 μg a few hours before insertion
  - Can be given orally, buccally, or vaginally
  - Consider stocking in clinician’s office
  - Medication may be dispensed early in the day and patient asked to return for insertion

*Clinical Pearl*
To reduce insertion pain (continued):

* NSAID block before procedure
* Lidocaine instillation into endometrial cavity:
  - Follow 1-2-3 rule:
    * 1 mL of lidocaine
    * 2% solution
    * 3-minute wait before starting procedure
Nulligravid Adolescent Case: Practice Tips (continued)

* Same-day chlamydia testing (with normal clinical exam):
  - No need to wait for test results before insertion
  - Positive tests should prompt treatment without need to remove device
Nulligravid Adolescent Case: Practice Tips (continued)

* Os finder
* Uterine dilators
* Timing of insertion
Nulligravid Adolescent Case: Counseling Points

- Follow-up and side-effect monitoring important
- Counsel regarding signs of expulsion
- Encourage use of condoms with new partners

Case Presentation: Heavy Menstrual Bleeding

- “Diane,” 24-year-old nulligravida
- Medical history:
  - Heavy menstrual bleeding, dysmenorrhea
- Presents for relief of heavy bleeding and cramping
- Has tried OCs in the past, dislikes having to take a daily pill

Consider: LNG IUS
Heavy Menstrual Bleeding Case: Clinical Considerations

* Evaluate for underlying cause of heavy bleeding
* Differential diagnoses:
  * Coagulopathy
  * Endometrial lesion, fibroid, or polyp
  * Anovulation

Heavy Menstrual Bleeding Case: Practice Tips

* Evaluate cause:
  * Menstrual history
  * History of other types of bleeding suggesting coagulopathy
  * Endometrial biopsy
  * Possible vaginal ultrasound
  * Sonohysterogram
Heavy Menstrual Bleeding Case: Counseling Points

- **To be expected:**
  - Lower volume of menstrual bleeding
  - Dysmenorrhea may improve
  - Breakthrough spotting
  - Unpredictable bleeding is common
  - 3–6 months for LNG IUS to have full effect on endometrium
IUC Counseling Topics (Continued)

- Side effects and possible complications
- Instructions on follow-up
- Non-contraceptive benefits
- Use of condoms with new partners
IUC Side Effects & Complications

Side Effects

Menstrual effects

Complications

Infection
Perforation
Pregnancy
Expulsion
Missing threads
# Signs of Possible Complications

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe bleeding or abdominal cramping 3–5 days after insertion</td>
<td>Perforation, infection</td>
</tr>
<tr>
<td>Irregular bleeding and/or pain every cycle</td>
<td>Dislocation or perforation</td>
</tr>
<tr>
<td>Fever, chills, unusual vaginal discharge</td>
<td>Infection</td>
</tr>
</tbody>
</table>

more…
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain during intercourse</td>
<td>Infection, perforation, partial expulsion</td>
</tr>
<tr>
<td>Missed period, other signs of pregnancy, expulsion</td>
<td>Pregnancy (uterine or ectopic)</td>
</tr>
<tr>
<td>Shorter, longer, or missing threads</td>
<td>Partial or complete expulsion, perforation</td>
</tr>
</tbody>
</table>
Management of Missing Threads

* Rule out pregnancy
* Probe for threads in cervical canal
* Prescribe back-up contraceptive method
* Obtain ultrasound or x-ray, as needed
* Remove a copper T IUD in abdomen promptly
Management of STIs

If STI diagnosed:

* IUC removal not necessary if symptoms improve within 72 hours of treatment
* Treat infection
* Counsel patient about prevention of STI transmission

Management of PID

If PID diagnosed:

* IUC removal may not be necessary
* Treat infection
* Recommendations to remove IUC are not evidence-based

LARC for Adolescents

* In Summary – the implantable progestin-only rod Nexplanon and the nulliparous progestin IUD, Skyla offer adolescents long acting (three years), highly effective reversible contraception.

* They require no interventions by the young woman for the three year course.

* There can be irregular uterine bleeding with both methods, but this tends to improve in 3-6 months of use.
LARC for Adolescents

- Surgical removal of the implant is required at the end of three years or sooner.
- Removal of the IUD by a health provider is preferred but some teens self remove their IUD’s.
- The initial costs for both methods is more expensive than shorter acting contraceptives but comparable when averaged over 3 years. These methods have much higher effective contraceptive continuation rates, with proper counseling than shorter acting methods.
- Concurrent use of condoms is required for STI and HIV prevention.
LARC for Adolescents
RESOURCES

* Contraceptive Technology, Hatcher, R. et. al. 20\textsuperscript{th} rev. edition 2011 [www.contraceptivetechnology.org](http://www.contraceptivetechnology.org)
* American College of Obstetricians and Gynecologists (ACOG) [www.acog.org](http://www.acog.org)
* Association of Reproductive Health Professionals [www.arhp.org](http://www.arhp.org)
* Alan Guttmacher Institute [www.guttmacher.org](http://www.guttmacher.org)
* [www.bedsider.org](http://www.bedsider.org)