

Long Acting Reversible Contraception (LARC): Changing the Health of Adolescent Girls Here and Abroad

Judy Simms-Cendan, MD
University of Central Florida
College of Medicine

HOW WELL DOES BIRTH CONTROL WORK?

What is your chance of getting pregnant?



Really, really well



The Implant (Nexplanon)



IUD (Skyla)

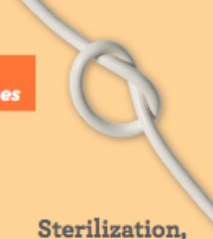


IUD (Mirena)



IUD (ParaGard)

No hormones



Sterilization, for men and women

Works, hassle-free, for up to...

3 years

3 years

5 years

12 years

Forever



Less than 1 in 100 women



Okay



The Pill



The Patch



The Ring



The Shot (Depo-Provera)

For it to work best, use it...

Every. Single. Day.

Every week

Every month

Every 3 months



8-9 in 100 women, depending on method



Not so well



Withdrawal



Diaphragm



Fertility Awareness



Condoms, for men and women

Needed for STI protection

Use with any other method

For each of these methods to work, you or your partner have to use it every single time you have sex.

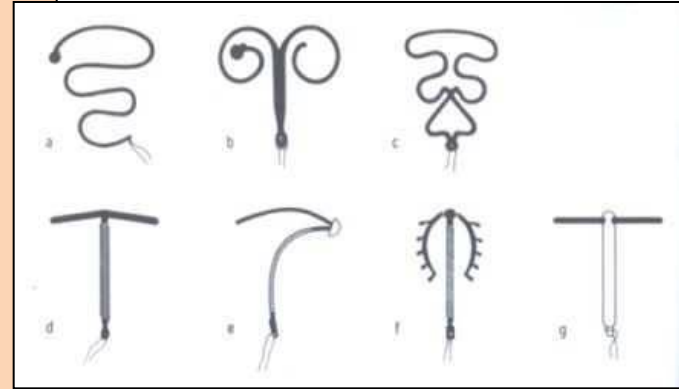


12-24 in 100 women, depending on method

FYI, without birth control, over 90 in 100 young women get pregnant in a year.

History of the IUD

- ✓ Worldwide, the most widely used reversible form of contraception
- ✓ Highest use in Eastern Asia (50%), lowest in the US (6% in 2012)
- ✓ Why the discrepancy?



- The US is a leader in the development of IUDs
- In 1971, the Dalkon shield introduced
- Soon, cases of severe PID reported (multi-filament tail string facilitated ascension of infectious organisms into upper genital tract)
- Withdrawn in 1974; generated enormous loss of confidence in IUDs in general



Intrauterine Contraception



Cu T380A

Levonorgestrel
intrauterine
system
(LNG-IUS)

- Both IUDs rival surgical sterilization in efficacy
- Continuation rates high compared to other reversible contraceptives
- Both provide long-term pregnancy prevention, but are promptly reversible
- Risk of upper genital tract infection negligible
- Levonorgestrel IUS has additional health benefits

Copper T IUD

- Made of polyethylene with copper along the vertical stem and side arms
- Monofilament polyethylene string
- Mechanism: copper causes immune response that creates a hostile environment for sperm, thus preventing fertilization; also disrupts normal division of oocytes, formation of fertilizable ova
- Not an abortifacient



Lasts 10-12 years

Copper T IUD

- Effective immediately following insertion
- Can also be used as emergency contraception up to 5 days following unprotected intercourse (reduces risk of pregnancy by >99%)
- Risks: perforation; expulsion; increased risk of infection during first month of use.*
- Menses regular, may have increased bleeding

Levonorgestrel Intrauterine System (LNG IUS)

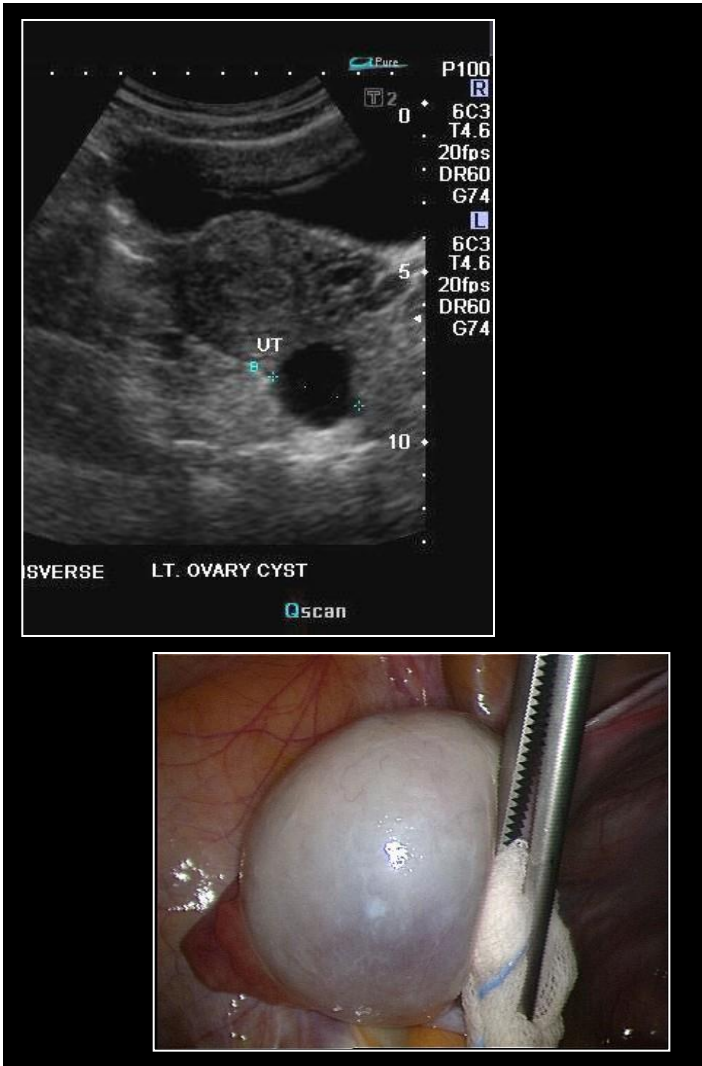
- LNG IUS reservoir releases levonogestrel
 - Mirena approved for 5 years Skyla for 3 years
 - Data demonstrates effective for up to 7 years
- Mechanism: thickens cervical mucus (inhibits sperm motility and function)
- High LNG levels also causes *endometrial atrophy*
 - Markedly decreased menstrual flow
 - Amenorrhea (absence of bleeding) in 20% of Mirena users at 1 year of use, less for Skyla

Prevents fertilization

Failure rate 0.2%

Complications

- Similar to Copper IUD
- Unique to LNG-IUS
 - Bleeding pattern initially unpredictable (frequent light spotting). By 3-6m, dramatically reduced bleeding
 - Progestin-mediated side effects [breast tenderness, mood changes, headache, acne] uncommon, decrease within first several months
 - Follicular ovarian cysts

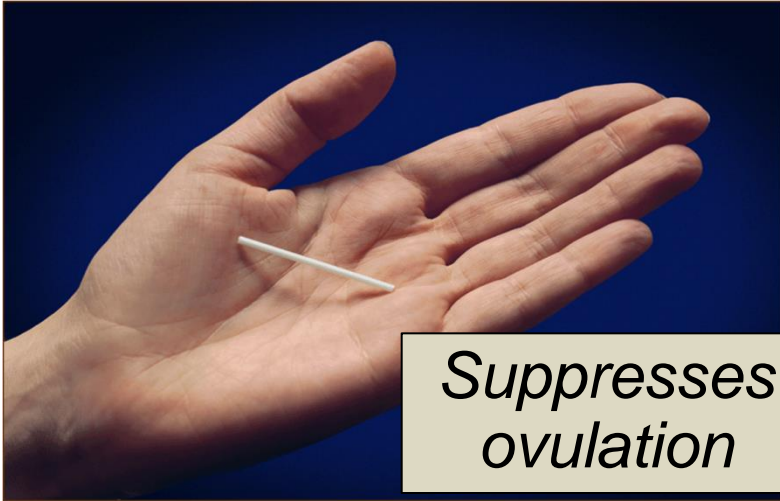


Contraindications to IUD/IUS

- ✓ Current pelvic infection (treat, wait 3 months before insertion)
- ✓ Current purulent cervicitis or GC/CT infection at time of insertion
- ✓ Unexplained vaginal bleeding
- ✓ Malignant GTD
- ✓ Cancer of the cervix, endometrium or breast (for LNG IUS only)
- ✓ Uterine distortion (makes insertion difficult, but possible to use)
- ✓ Known pelvic tuberculosis

For positive testing found after insertion, treat and leave IUD in place

Implant (Nexplanon)



*Suppresses
ovulation*

- Single rod implant consisting of 68mg etonorgestrel
 - Failure rate is 0.05%
 - Must be removed within 3 years of insertion
-
- Bleeding, amenorrhea common
 - Spotting (50% decreasing to 30% after 6m)
 - Amenorrhea (20%)
 - Frequent irregular bleeding (<10%)
 - Unpredictable bleeding pattern over time

Implant Insertion



✓ Counseling:

- Briefly describe insertion and removal process
- *Nonhormonal contraception for first 7 days after insertion*



✓ Advantages:

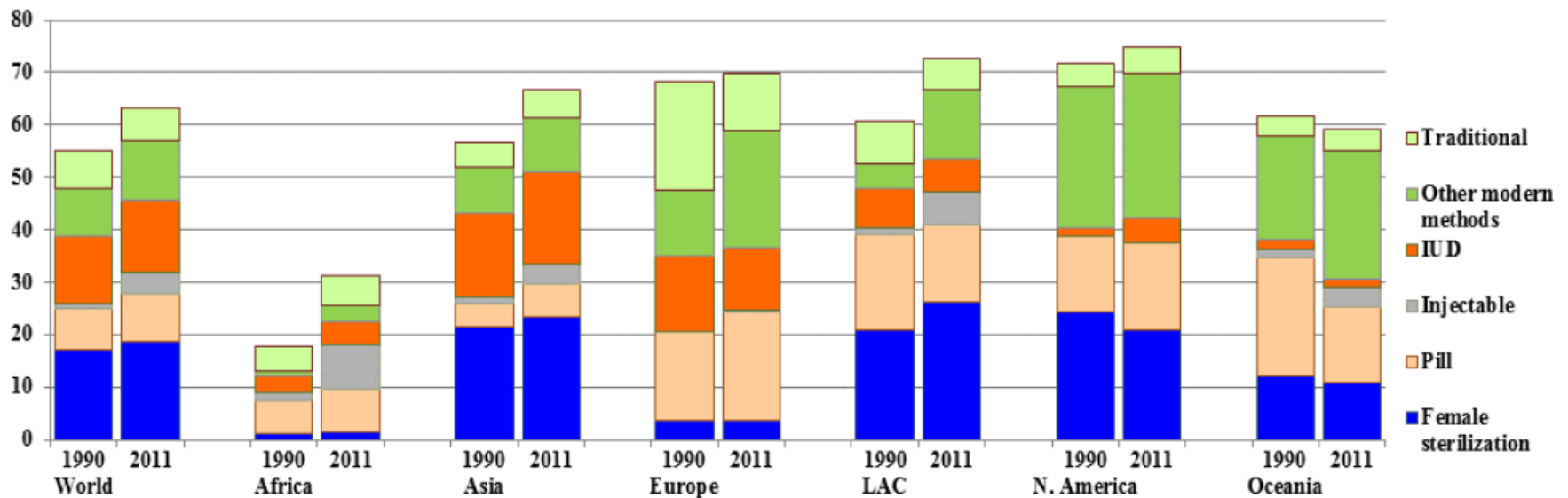
- Long-term; highly effective; rapidly reversible; improves dysmenorrhea; use in older smokers, postpartum

✓ Disadvantages:

- Provider-inserted; irregular bleeding; no STI protection

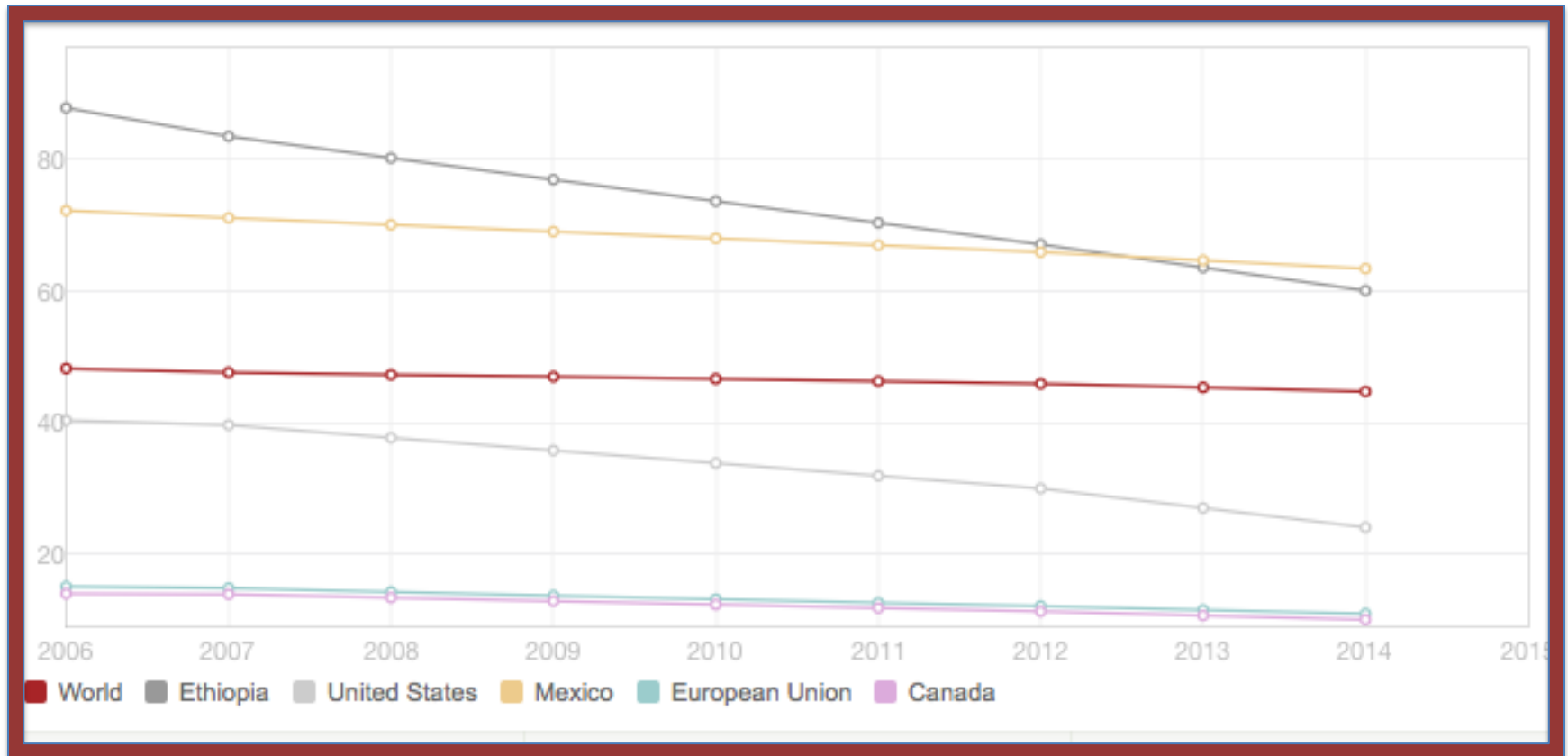
Contraceptive Use, UN

Figure 1: Contraceptive prevalence among married or in-union women aged 15 to 49 by method and region, 1990 and 2011



What is the need for LARC?

Adolescent Pregnancy Rates per 1000 Girls

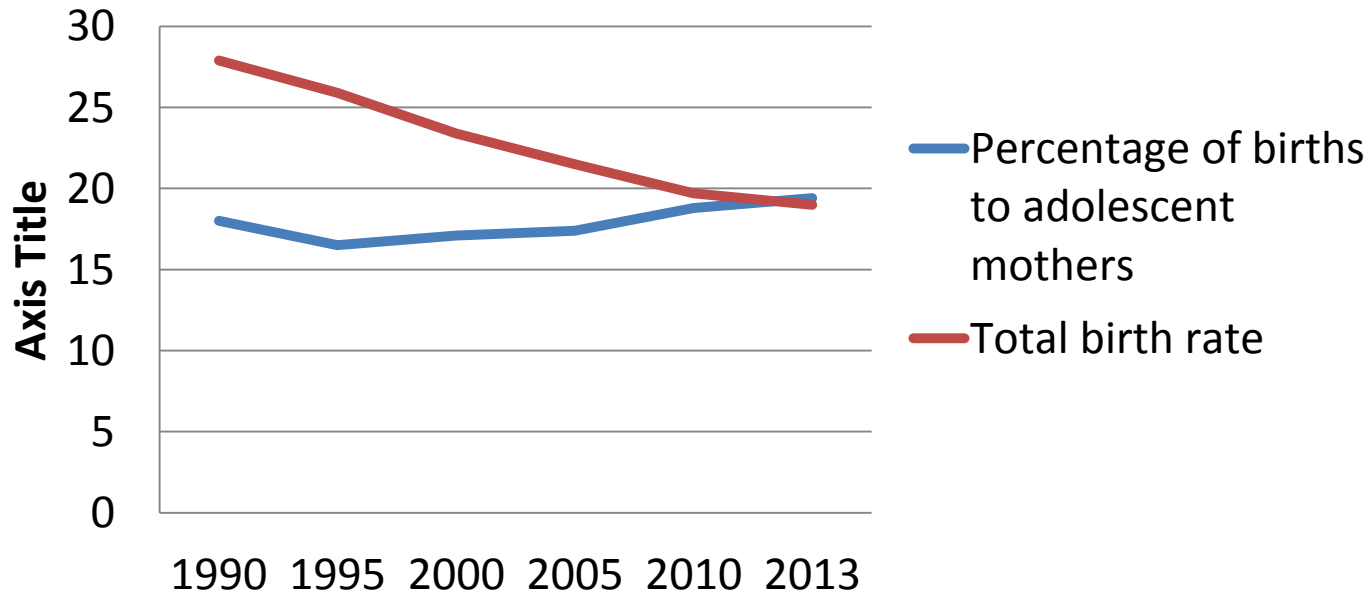


<div style="width:300px; font-family:'Helvetica Neue', Helvetica, Arial, sans-serif; line-height:20px"><div style="background-color:#333; padding:0px 5px; font-weight:bold"><div style="color:#fff; font-size:12px; line-height:20px;">Adolescent fertility rate (births per 1,000 women ages 15-19)</div><script type="text/javascript">widgetContext = { "url": "http://data.worldbank.org/widgets/indicator/0/web_widgets_3/SP.ADO.TFRT/countries/1W-ET-US-MX-EU-CA", "width": 300, "height": 225, "widgetid": "web_widget_iframe_eb9320fcb9086e4a20e41dee9cf900b0" };</script><div id="web_widget_iframe_eb9320fcb9086e4a20e41dee9cf900b0"></div><script src="http://data.worldbank.org/profiles/datafinder/modules/contrib/web_widgets/iframe/web_widgets_iframe.js"></script><div style="font-size: 10px; color:#000">Data from World Bank</div></div>

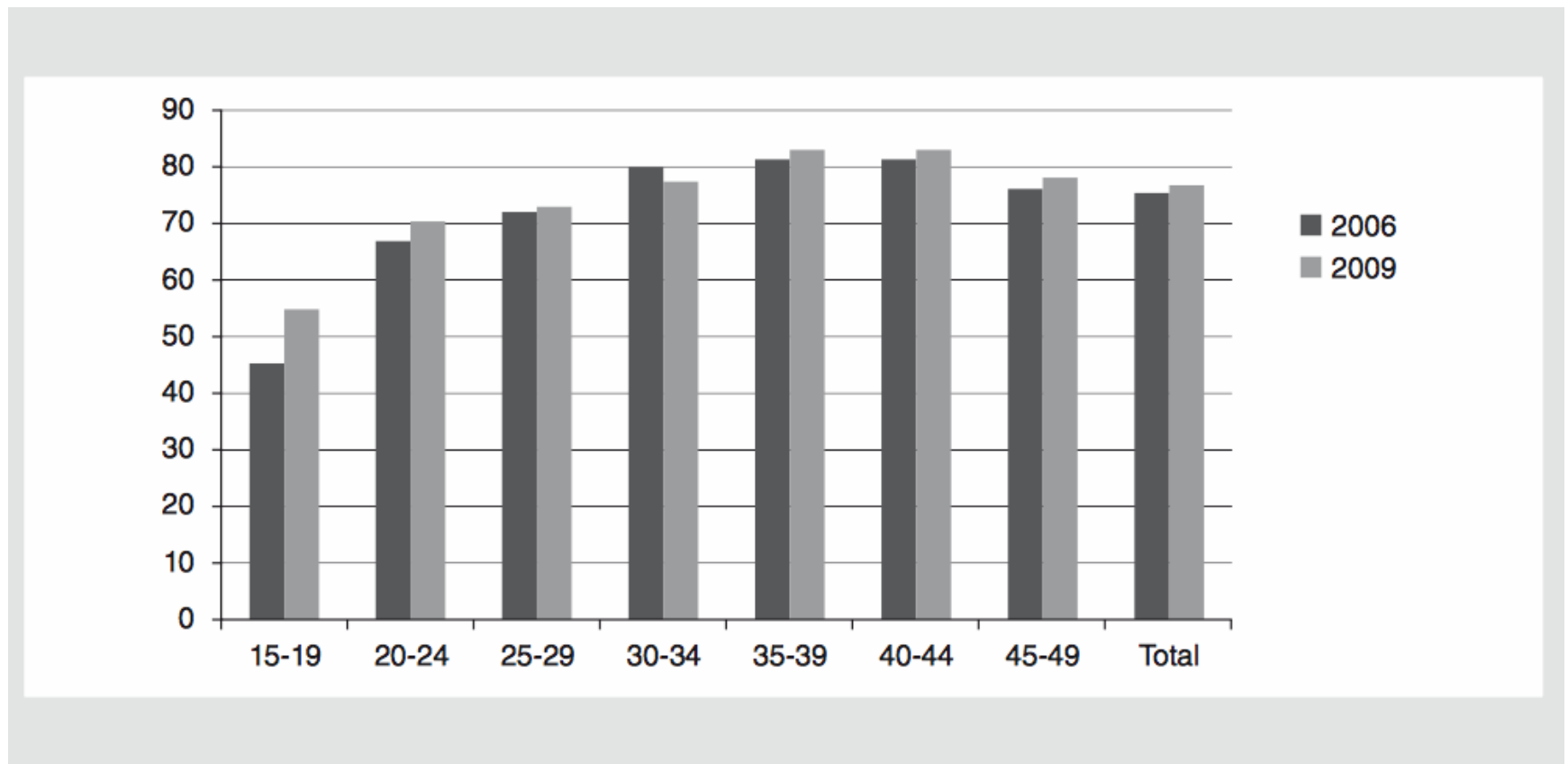
MEXICO

While the national birth rate has fallen in Mexico, the percentage of births to adolescent mothers has risen.

Total Birth Rate vs Proportion of Adolescent Mothers



Adolescents Use Contraception Less than Adult Women in Mexico

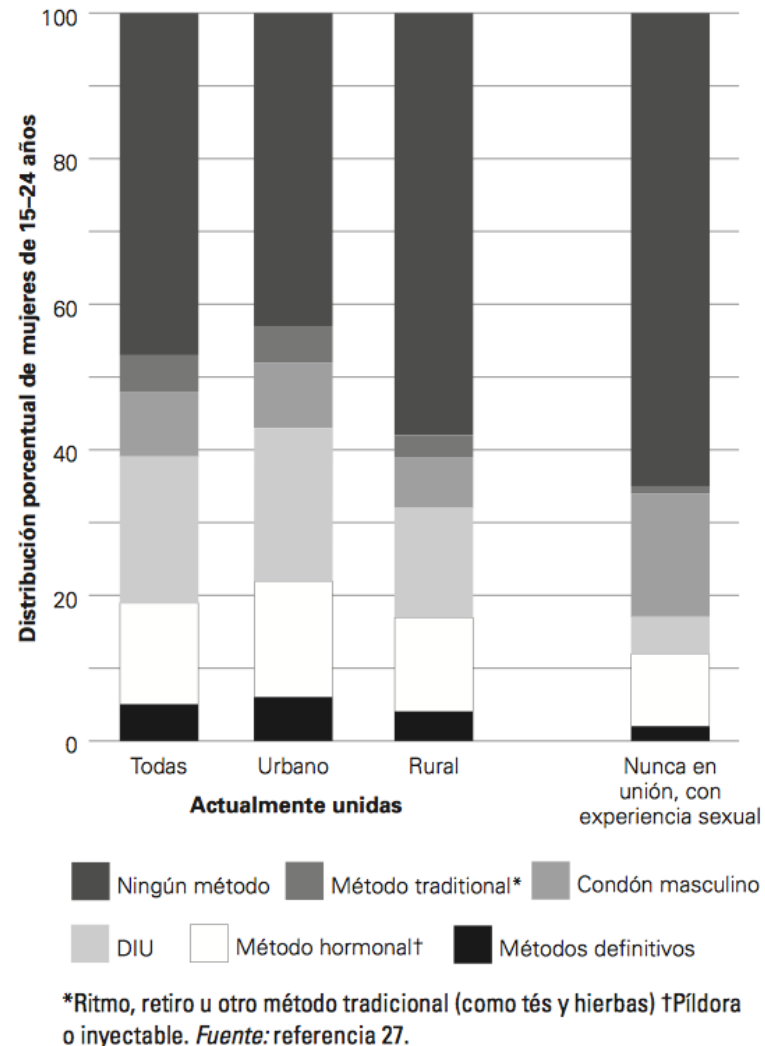


ra 2. *Mujeres sexualmente activas que usan métodos anticonceptivos (%), por grupos de edad. Aunque existe un incremento en 2009, las adolescentes utilizan anticonceptivos en menor proporción en comparación con el resto de mujeres⁸.*

In 2006, the type of contraception used by young women depended on where they lived and whether or not they were married.

- Young married women in rural communities used contraception less often.
- In general, the IUD was used more often than other (in 2006 20% used the IUD), and was more popular in urban than rural areas.
- 9% used pills.
- Only 35% of sexually active single women between 15–24 used contraception—a percentage 18 points lower than the 53% used by married women of the same age.

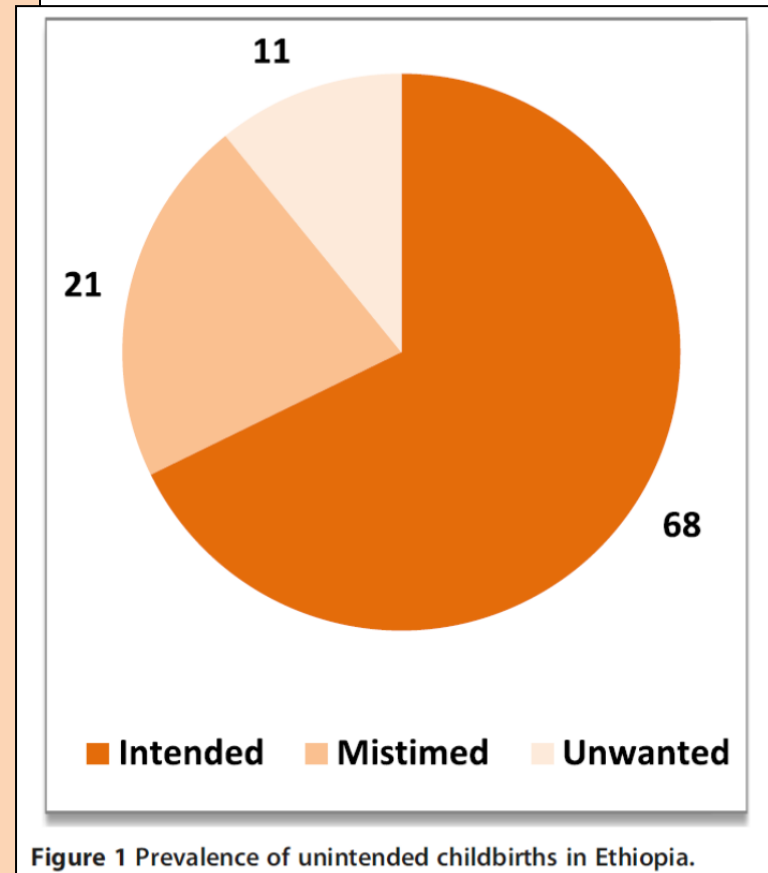
GRÁFICA 7. En 2006, los métodos anti-conceptivos utilizados por las jóvenes variaron de acuerdo con su estado civil y lugar de residencia.



ETHIOPIA

Opportunities for Reducing Unintended Pregnancy and Childbirth

- From the EDHS 2011 Data
- 7,759 (weighted = 7905).
 - 85% of women were from rural areas,
 - 69% were aged 20-34 years
 - 2/3 had no education.
 - 91% of the women were married
- 34% of girls age 15-19 years reported an unintended pregnancy
- About 86% of never-married women reported having had unintended pregnancy (600 women of this survey)



Prevalence and determinants of unintended childbirth in Ethiopia.

Tebekaw et al. BioMedCentralPregnancy and Childbirth 2014, 14:326

Use of LARC in Adolescents in Ethiopia

- According to the 2014 mini DHS, 22% of women of reproductive age in Ethiopia are age 15-19 years, the largest group
- In 2014, 40.7% of married Ethiopian young women aged 15-19 used modern contraceptive methods
 - 32% used injectables (7% if unmarried)
 - 4.6% used pills (1% if unmarried)
 - 2.6% used implants (.7% if unmarried)
 - .7% use IUDs (.3 if unmarried)

Data from the 2014 EMDHS.

Journal of Adolescent Health 52 (2013) S40eS46

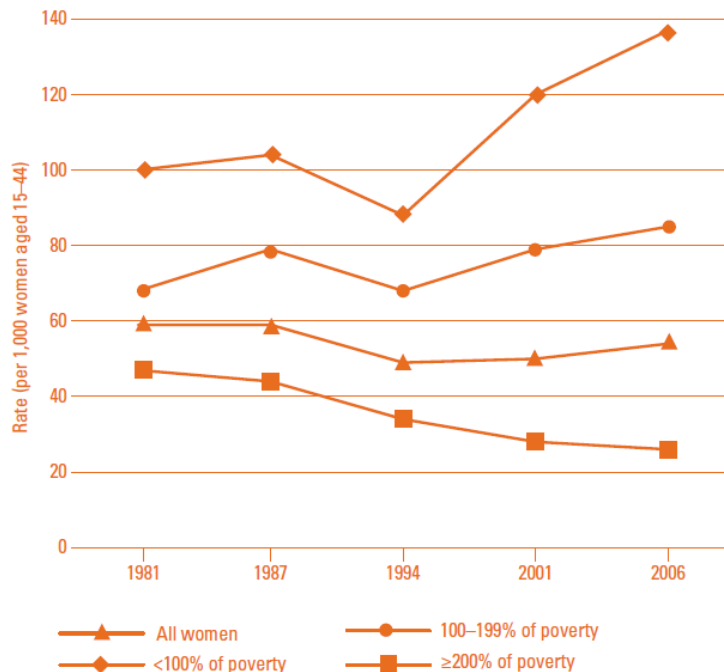
Use of LARC in Ethiopia is growing, slowly

- Prevalence of LARC use in married women
 - 5% for implant
 - 1.1% IUD
- Knowledge of LARC, women aged 15-19
 - 38% aware of IUDs
 - 75% aware of implant
 - 93% aware of injectables
- We know that LARC is up to 20x more effective than other reversible contraception such as the pill, patch or ring

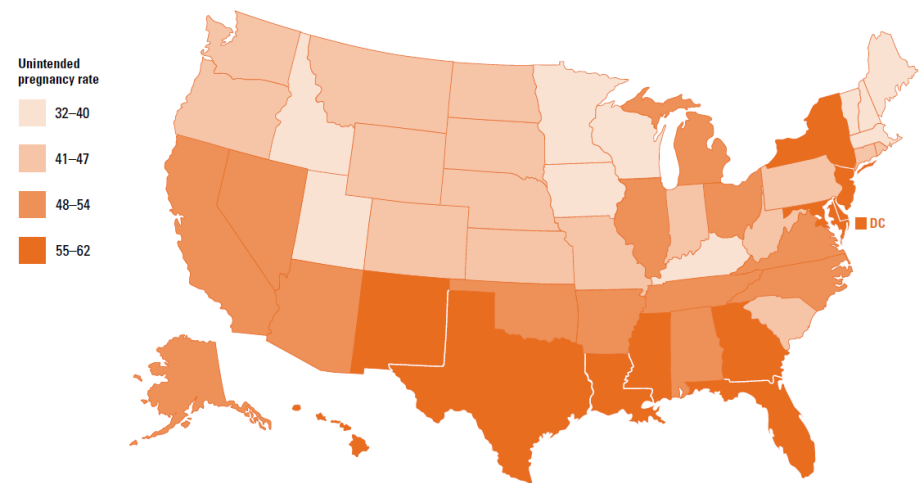
UNITED STATES

Healthcare Disparity in Unintended Pregnancy: Income and Location

Unintended Pregnancy Rates, 1981–2008
 Unintended pregnancy has become increasingly concentrated among poor and low-income women.



Unintended Pregnancy Rates, by State, in 2010



*Rates for Arizona, Indiana, Kansas, Montana, Nevada, New Hampshire, North Dakota and South Dakota estimated by multivariate regression.

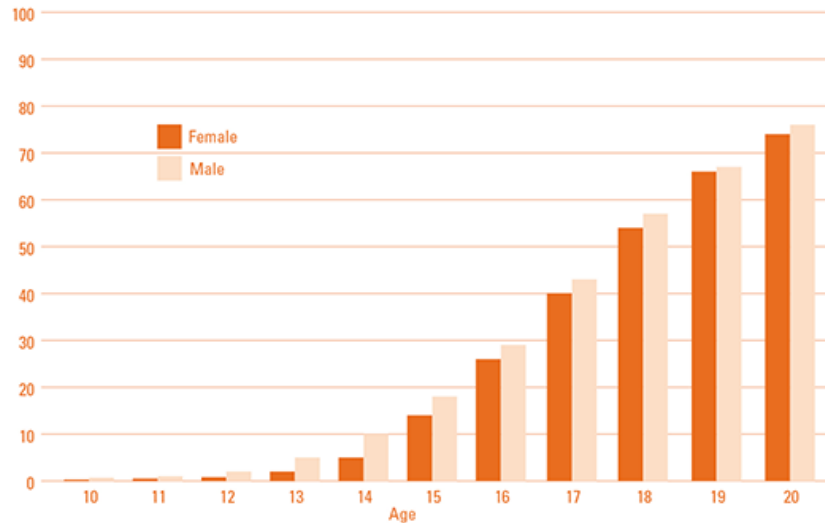
<http://www.guttmacher.org/pubs/FB-Unintended-Pregnancy-US.html>

Teens in the US

Teen Sexual Activity

Adolescence is a time of rapid change.

% of adolescents who have had sex by each age

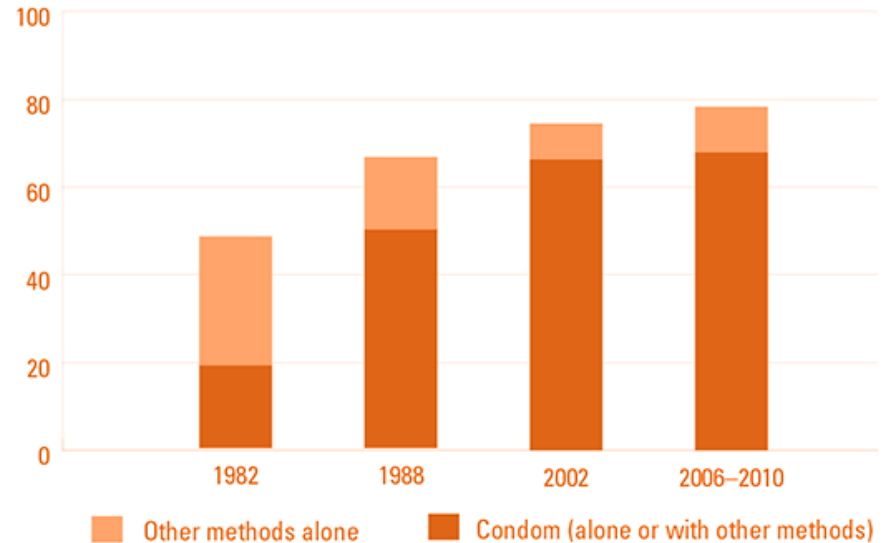


www.guttmacher.org

U.S. Teen Contraceptive Use

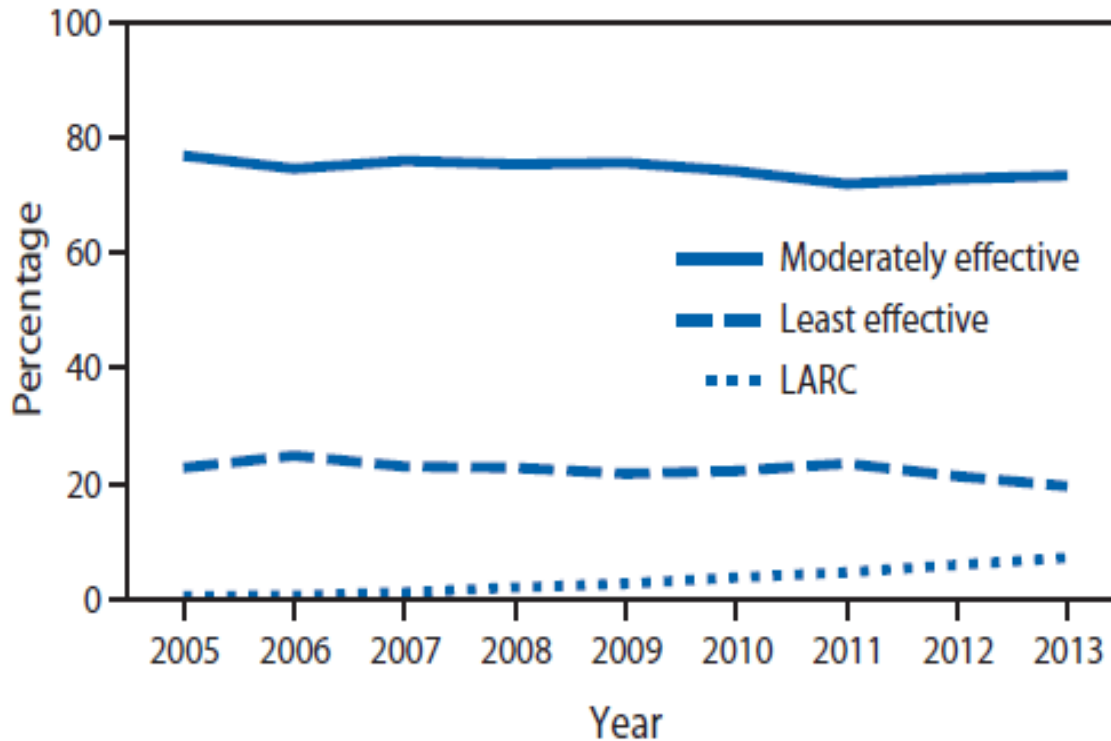
Contraceptive use at first sex is increasing.

% using contraceptives at 1st sex

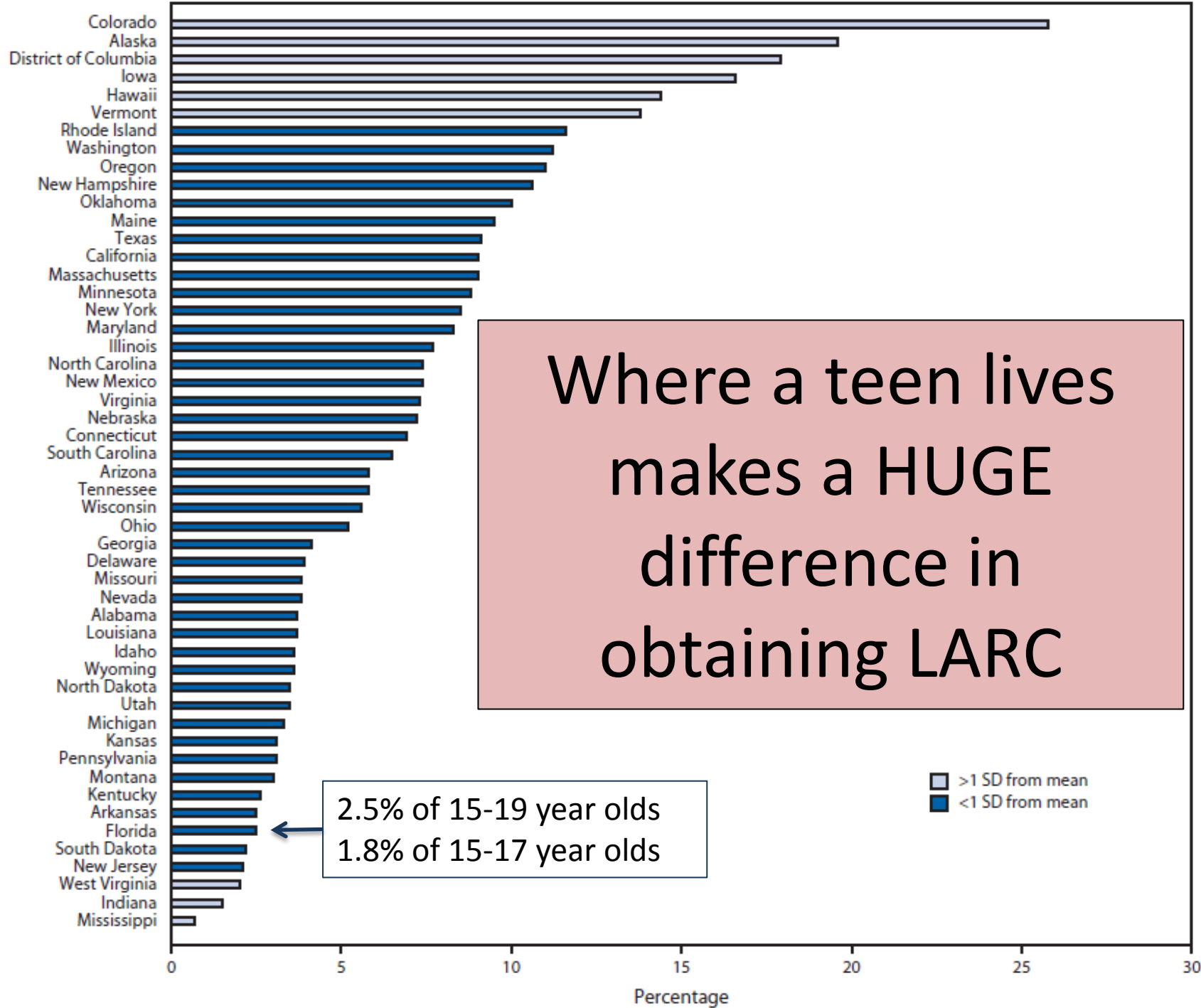


www.guttmacher.org

Rate of LARC Usage by Teens in the US



Rate of LARC use rose from 0.4% in 2005 to 7.1% in 2013

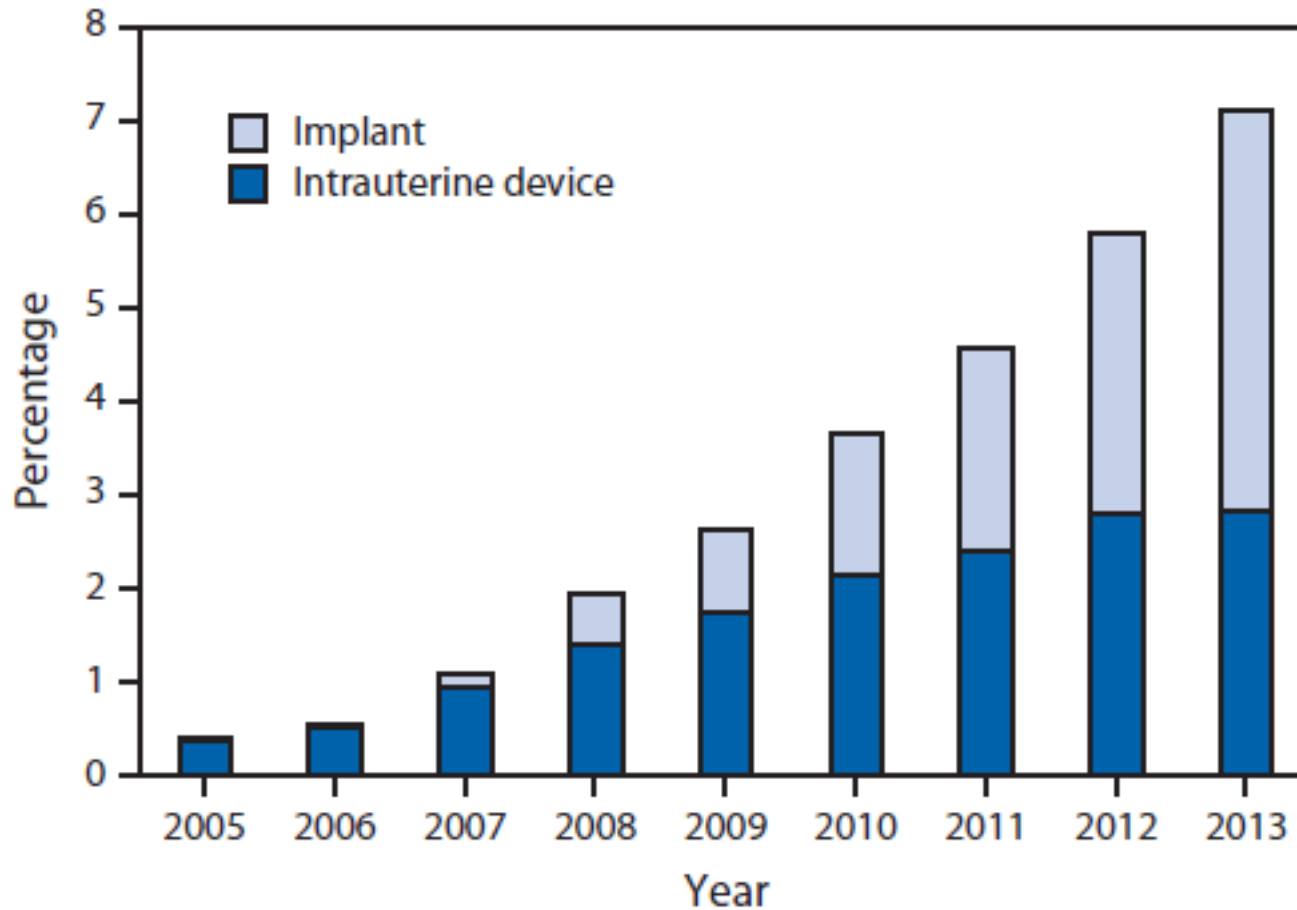


Where a teen lives makes a HUGE difference in obtaining LARC

2.5% of 15-19 year olds
1.8% of 15-17 year olds

■ >1 SD from mean
■ <1 SD from mean

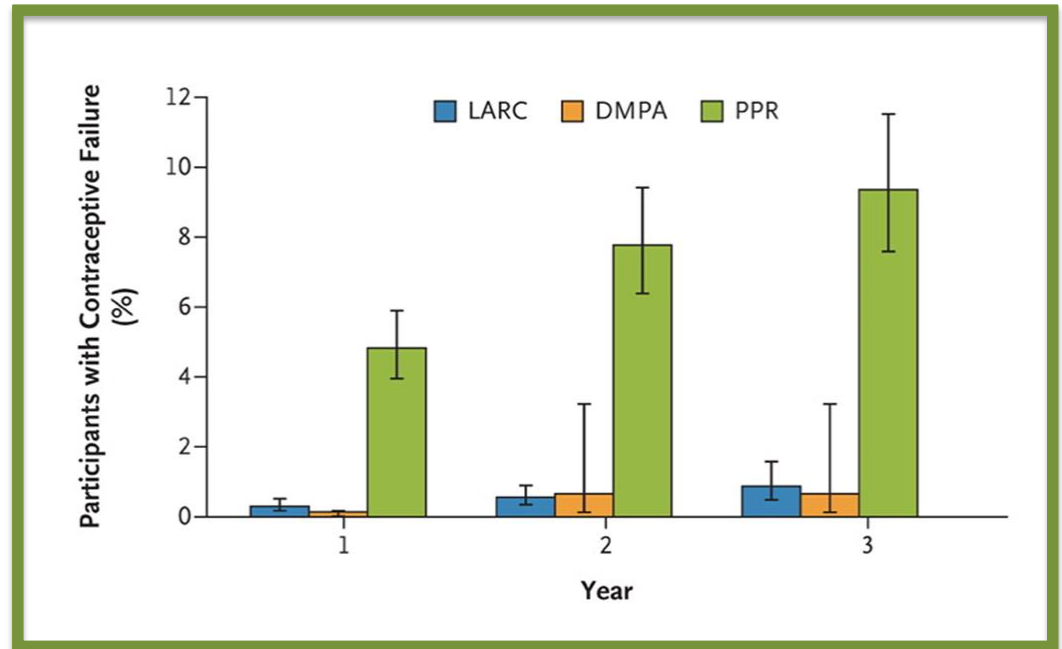
Implants are chosen more than IUD's by teens choosing LARC (4.3% vs 2.8%)



http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6413a6.htm?s_cid=mmm6413a6_w

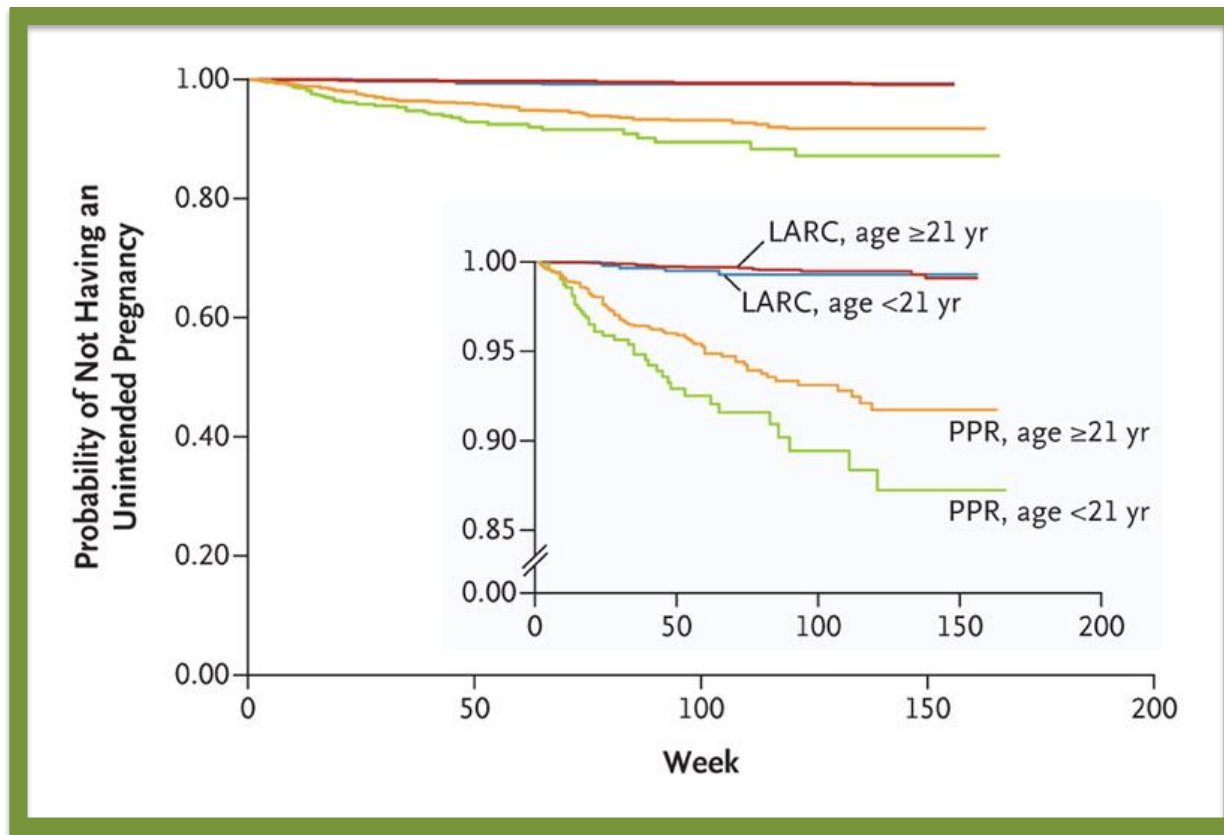
Cumulative Percentage of Participants Who Had a Contraceptive Failure at 1, 2, or 3 Years, According to Contraceptive Method.

- 7486 Women in Contraceptive CHOICE program
- Aged 14-45 years
- Many were of low income
- More than half had a history of previous unintended pregnancy
- Followed for 3 years



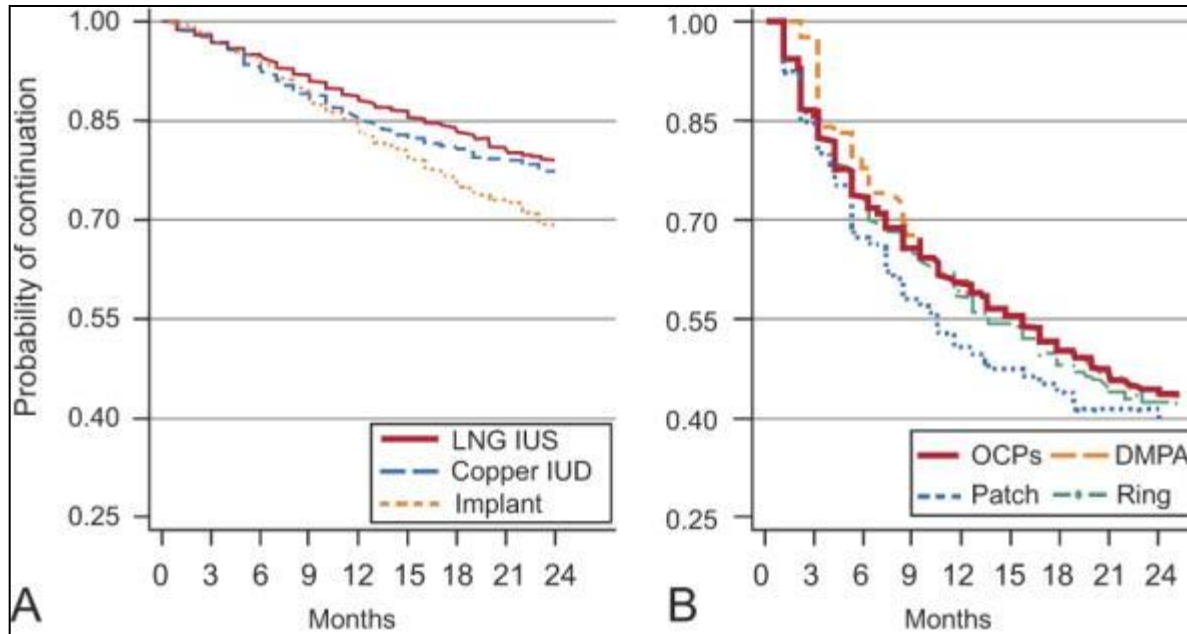
PPR=Pill/Patch/RIng

The Difference in Efficacy is even Greater in Adolescents



Probability of Not Having an Unintended Pregnancy, According to Contraceptive Method and Age.

Continuation over 24 months for long-acting reversible contraceptive (LARC)



Continuation over 24 months for long-acting reversible contraceptive (LARC) (A) and non-LARC (B) methods. Log rank $P=.72$. LNG IUS, levonorgestrel intrauterine system; IUD, copper intrauterine system; OCP, oral contraceptive pill; DMPA, depot medroxyprogesterone acetate. Fig. 2. O'Neil-Callahan. Twenty-Four-Month Contraceptive Continuation. *Obstet Gynecol* 2013.

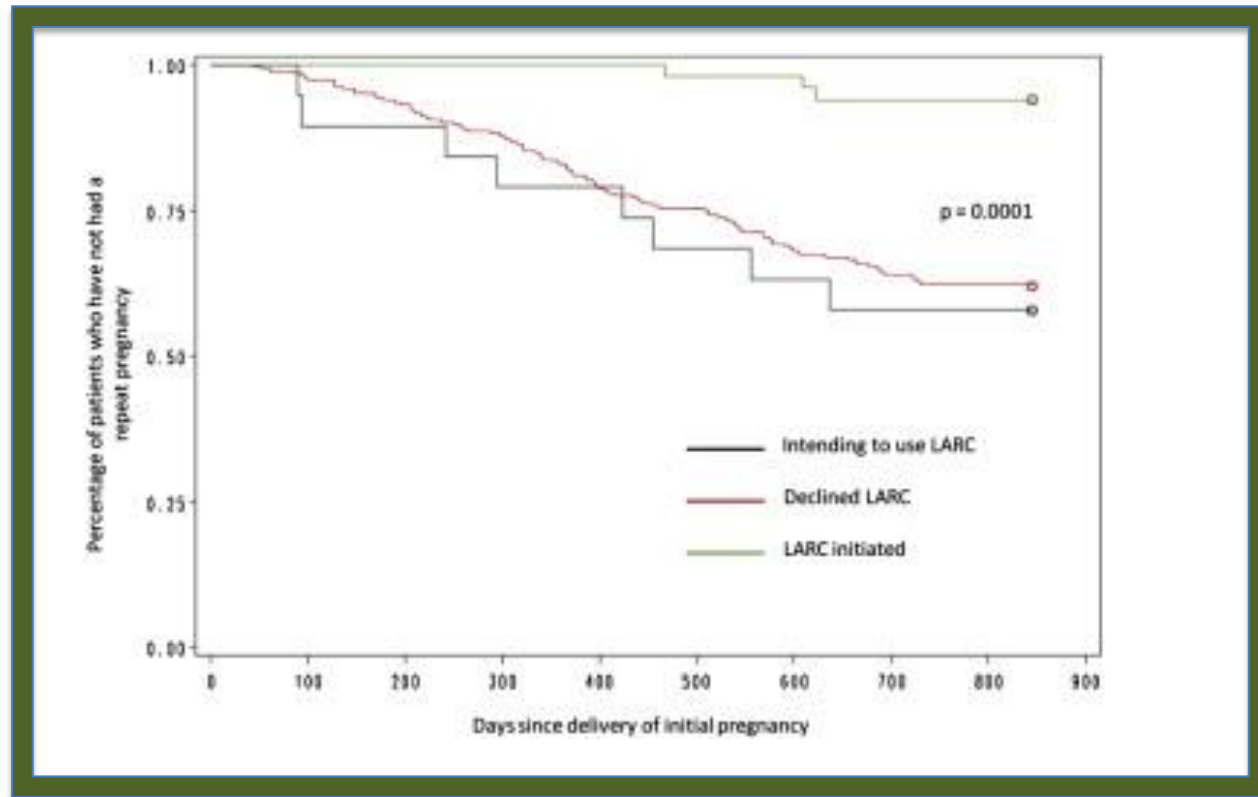
Twenty-Four-Month Continuation of Reversible Contraception.

O'Neil-Callahan, Micaela; Peipert, Jeffrey; MD, PhD; Zhao, Qihong; Madden, Tessa; MD, MPH; Secura, Gina; PhD, MPH

Obstetrics & Gynecology. 122(5):1083-1091, November 2013.

DOI: 10.1097/AOG.0b013e3182a91f45

LARC use by 8 weeks postpartum and time to repeat pregnancy in Adolescent Girls.



Early Initiation of Postpartum Contraception: Does It Decrease Rapid Repeat Pregnancy in Adolescents? Lauren F. Damle , Amir C. Gohari , Anna K. McEvoy , Sameer Y. Desale , Veronica Gomez-Lobo *Journal of Pediatric and Adolescent Gynecology*, Volume 28, Issue 1, 2015, 57 - 62 <http://dx.doi.org/10.1016/j.jpag.2014.04.005>

Global Patient Myths About IUDs

Myth	Fact
IUDs cause abortion	The copper in the Paraguard is toxic to sperm, the levonorgestrel increases cervical mucus and thins the endometrium. Tests for “chemical pregnancies” with sensitive serum hCG are negative.
IUDs cause PID	Risk is only at the time of insertion if patient has untreated gonorrhea or chlamydia, rate is 0-5%
IUDs cause infertility	2 cohort studies show no increase risk of infertility after discontinuation of copper IUD
IUDs cause ectopic pregnancy	IUDs reduce the risk of pregnancy overall, and decrease risk to 1/10 th of women not using contraception
IUDs cause cancer	Levonogestrel IUDs and copper IUDs have been shown to protect against endometrial cancer. Copper IUDs may have a protective affect against cervical cancer.

Use of IUDs in Nulliparous Patients

- WHO and CDC both state the benefits of use of IUDs in nulliparous patients has advantages that outweigh theoretical or proven risks (category 2).
 - Concern is theoretical risk of infertility that has never been seen in well-conducted studies.

Support for LARC as first-line contraception

Pediatrics

October 2014, VOLUME 134 / ISSUE 4

Contraception for Adolescents

Mary A. Ott, Gina S. Sucato,

- AAP Technical Report: “It is recommended that pediatricians use a “tiered” approach to contraceptive counseling, starting with the most effective methods.”

- With top-tier effectiveness, high rates of satisfaction and continuation, and no need for daily adherence, LARC methods should be first-line recommendations for all women and adolescents



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

COMMITTEE OPINION

Number 539, October 2012

(Replaces Committee Opinion No. 392, December 2007, Reaffirmed 2014)

Committee on Adolescent Health Care
Long-Acting Reversible Contraception Working Group

Adolescent Psychology and LARCs

- Adolescent psychology affects contraceptive use
 - Adolescent development makes compliance with pills less likely
 - Coercion from boyfriend, husband, family or others to have a child may be present
 - Do not underestimate birth control sabotage
 - May have occurred in up to 15% of women age 16-19 according to a California study. This is higher in women with a history of abusive relationships.
 - Low self-esteem, lack of lifetime goals and few opportunities can undermine contraceptive efficacy
- This is a great opportunity to discuss ease, discretion, and efficacy of LARCs

Hillard, P. *Journal of Adolescent Health* (2013) 52:S40eS46

Miller, E et al. *Contraception* (2010) 81 (4):316-322.

Directed Counseling Works: The Contraceptive CHOICE Project

- The contraceptive CHOICE project is a prospective observational study promoting and evaluating the use of long-acting reversible methods of contraception.
- Participants initially heard a standardized script about the effectiveness of LARC methods, and subsequently heard evidence-based information about the safety, effectiveness, risks, and benefits of all methods
- 62% of adolescents chose LARC methods.
 - 63% of 14-17 year olds chose the implant
 - 71% of the 18-20 year olds chose an IUD

Do Not Understate Side Effects to Adolescents

- Realistic information is important
- Discontinuation rates are lower when women expect changes
 - Adolescents often cannot interpret risk well, so if they hear something “may” happen, they think it will not happen to them.
 - Side effects that are expected, such as irregular bleeding or amenorrhea should be explained and providers should discuss a plan for if they happen.

Tips for insertion of IUDs in Adolescents

- Debate of IUD insertion being first pelvic exam
- Analgesia
 - Ibuprofen 400 mg 2 hours for procedure
 - Paracervical block
- Ease insertion
 - Misoprostol in nulliparous patients
 - This has not been shown to reduce pain
- Calm anxiety
 - “Vocal” anesthesia
 - Music

Use of Levonorgestrel IUD for Medical Indications in Adolescents

- Control of heavy menstrual bleeding
- Control of heavy menses in cases of bleeding disorders, including ITP
- Reduction of menstrual pain
- Reduction of endometriosis pain
 - Consider placement at time of laparoscopy
- Menstrual suppression for physically or mentally disabled adolescents

Excellent Resources

- www.bedsider.org
 - Great information delivered in a fun, sometimes suggestive way
 - Free text reminders for taking pills, using patches
- CDC U.S. Medical Eligibility for Contraceptive Use
 - Reviews the use of different types of contraception given certain medical conditions
 - Free app available
 - www.cdc.gov/reproductivehealth/unintendedpregnancy/usmec.htm
- CDC Selected Practice Recommendations for Contraceptive Use
 - Addresses barriers to obtaining contraception
 - www.cdc.gov/reproductivehealth/UnintendedPregnancy/USSPR.htm
- iContraception App
 - Gives recommendations for best contraception for individuals