USEFUL OVERVIEW IN ADOLESCENT CONTRACEPTION

NANCY SOKKARY 2019

No conflicts of Interest or disclosures

Nexplanon Trainer

Congenital Anomalies of the Uterus/Vagina
Congenital Malformations of the Vulva
Transgender Adolescent Medicine
Differences in Sexual Development

Common Gynecologic Conditions

Adnexal Masses, Cysts and Tumors
Contraception
Hirsutism
Genital Trauma
Sexually Transmitted Infections
Pediatric vulvar issues
Breast Abnormalities

Puberty and Menstruation

Disorders of Puberty (Delayed or Precocious)
First Pelvic Exam
Menstrual suppression
Dysmenorrhea/Endometriosis
Menstrual Irregularities
Polycystic Ovary Syndrome
Premature Ovarian Insufficiency
(PMS)/ (PMDD)

CONTRACEPTION: Objectives

General Principals

Counseling

Modes of Contraception

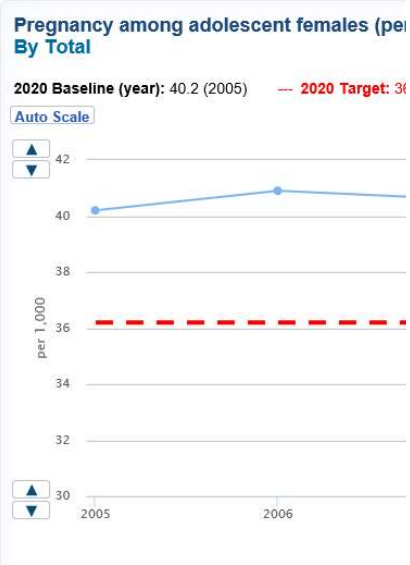
- Long acting reversible contraception
- Oral
- Non-Oral combined
- Injectable
  - *efficacy based on weight

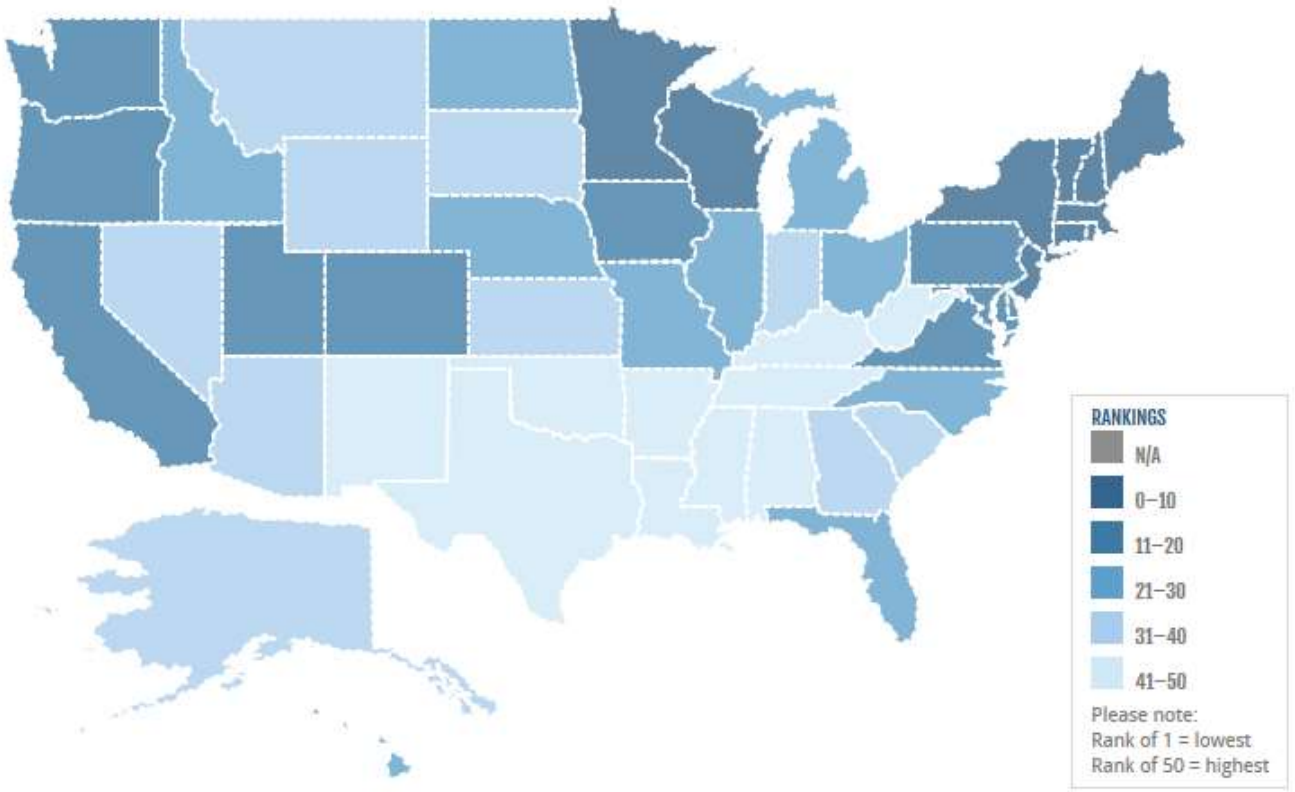
Teen Pregnancy Outcomes

- Pregnancy Complications
  - Insufficient prenatal care
  - Low birth weight*
  - Preterm Delivery*
  - Less likely to breastfeed
- Future for mother
  - Postpartum depression
  - Less likely to graduate high school and go to college
  - Intimate partner violence
  - 18% with experience second pregnancy before age 20
- Future for infant
  - Developmental delay
  - More likely to be incarcerated
  - Poor school performance
  - Teen pregnancy

Goldenberg R Et Al. Adolescent pregnancy-another look. N Engl J Med, 1995;332:1161-1162

Teen Pregnancy





https://www.cdc.gov/teenpregnancy/about/index.htm

https://www.healthypeople.gov/2020/data/Chart/4467?category=1&by=Total&fips=-1

GEORGIA CAMPAIGN FOR ADOLESCENT POWER & POTENTIAL

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DPH Georgia Department of Public Health

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ALL DIGITAL ONLY $ FOR 4 W

EDUCATION AUGUST 12, 2016 5:44 PM

Sex ed, teen pregnancy to get bigger focus in new Bibb curriculum

LAW

Code Sections	**Rape:** O.C.G.A. 16-6-1 **Statutory Rape**: O.C.G.A. 16-6-3
Elements of Rape	**Rape:** Any man who forcibly uses his penis to penetrate a female's vagina against her will. This law only applies to females. A husband can rape his wife in Georgia.
Elements of Statutory Rape	**Statutory Rape** : Sexual intercourse with any person under the age of 16 years who is not your spouse. **Romeo and Juliet Provision**: If the victim is 14-16 years old and the defendant is either 18 years old or no more than four years older than the victim, he or she will be guilty of a misdemeanor.
Penalty for Rape	Death penalty , life in prison without parole, or minimum of 25 years in prison followed by lifetime probation.
Penalty for Statutory Rape	**Statutory Rape**: **Felony** if under 21 years old, 1-20 yrs in prison. If over 21 years old, 10-20 yrs in prison and mandatory sex offender registration. **Romeo and Juliet Penalty**: **Misdemeanor u** p to 1 yr. in jail, probation, fines, possible community service, and a possible "stay away" order.

1-800-GACHILD

http://statelaws.findlaw.com/georgia-law/georgia-rape-and-statutory-rape-laws.html

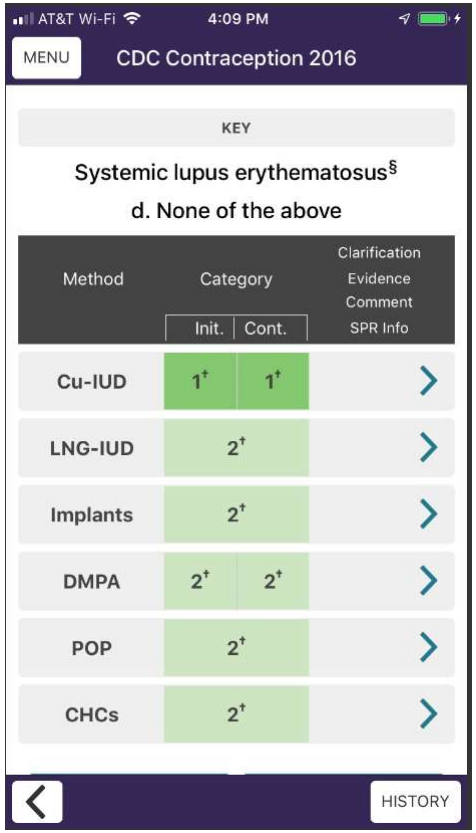
Laws

MINORS MAY CONSENT TO:						
STATE	CONTRACEPTIVE SERVICES	STI SERVICES	PRENATAL CARE	ADOPTION	MEDICAL CARE FOR MINOR'S CHILD	ABORTION SERVICES
Alabama	All†	All*	All	All	All	Parental Consent
Alaska	All	All	All		All	Parental Notice
Arizona	All	All		All		Parental Consent
Arkansas	All	All*	All		All	Parental Consent
California	All	All	All	All		▼ (Parental Consent)
Colorado	All	All	All	All	All	Parental Notice
Connecticut	Some	All		Legal counsel	All	All
Delaware	All*	All*	All*	All	All	Parental Notice‡
Dist. of Columbia	All	All	All	All	All	All
Florida	Some	All	All		All	Parental Notice
Georgia	All	All*	All	All	All	Parental Notice

Guttmacher Institute. An overview of minors' consent law: State Policies in Brief. www.guttmacher.org/statecenter/spibs, accessed 2019.

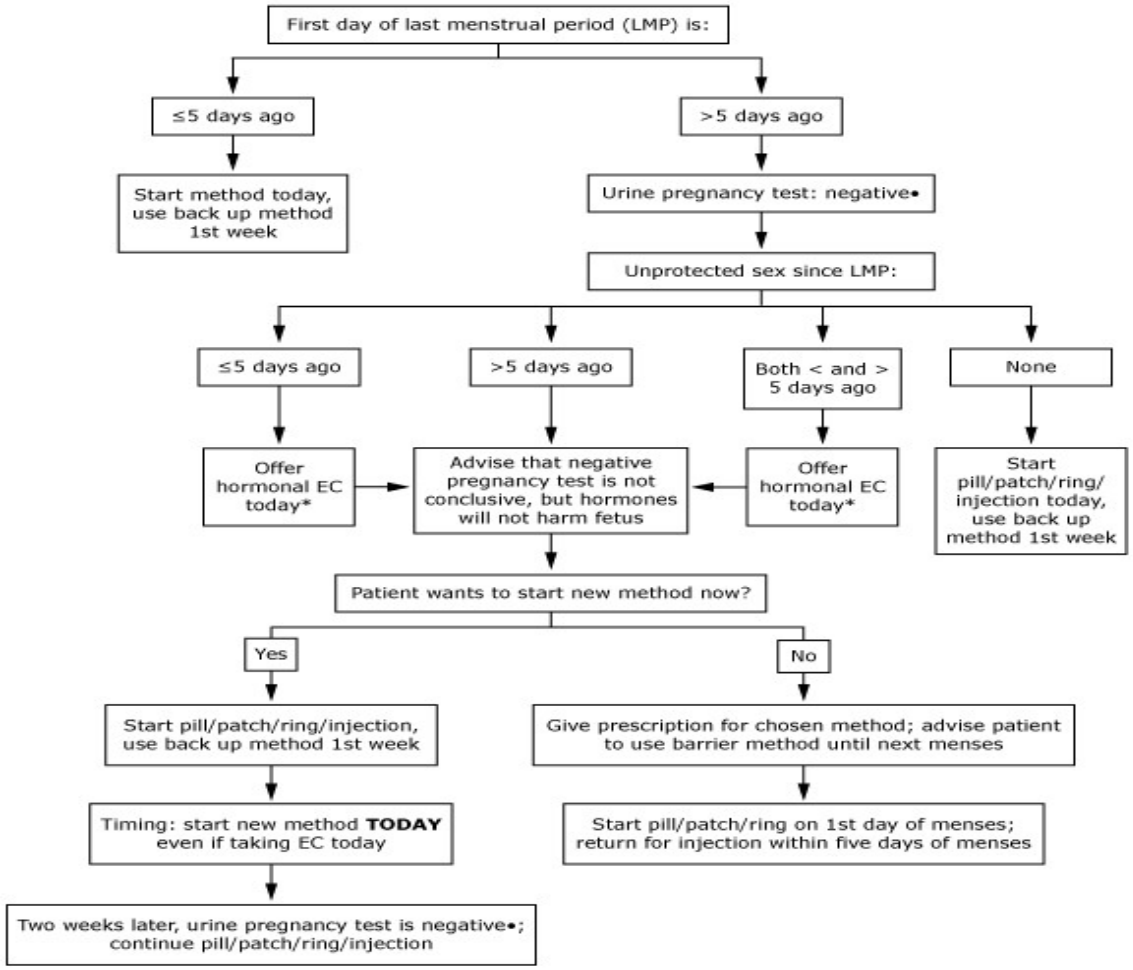
Medical Eligibility Criteria for Contraception

Key:	
1 No restriction (method can be used)	3 Theoretical or proven risks usually outweigh the advantages
2 Advantages generally outweigh theoretical or proven risks	4 Unacceptable health risk (method not to be used)



Medical Eligibility Criteria

Quick Start


First day of last menstrual period (LMP) is:
≤5 days ago
>5 days ago
Start method today, use back up method 1st week
Urine pregnancy test: negative•
Unprotected sex since LMP:
≤5 days ago
>5 days ago
Both < and > 5 days ago
None
Offer hormonal EC today*
Advise that negative pregnancy test is not conclusive, but hormones will not harm fetus
Offer hormonal EC today*
Start pill/patch/ring/ injection today, use back up method 1st week
Patient wants to start new method now?
Yes
No
Start pill/patch/ring/injection, use back up method 1st week
Give prescription for chosen method; advise patient to use barrier method until next menses
Timing: start new method TODAY even if taking EC today
Start pill/patch/ring on 1st day of menses; return for injection within five days of menses
Two weeks later, urine pregnancy test is negative•; continue pill/patch/ring/injection

Condoms

Use them

The rate of dual use among adolescents is 22.8%, and is lowest among LARC users

Eisenberg DL, Allsworth JE, Zhao Q, et al. Correlates of dual-method contraceptive use: An analysis of the National Survey of Family Growth (2006-2008). Infect Dis Obstet Gynecol 2012;

Counseling: AAP Policy

Pediatricians should counsel about and ensure access to a broad range of contraceptive services …describing the most effective methods first.

Contraception for Adolescents
COMMITTEE ON ADOLESCENCE
Pediatrics 2014;134;e1244; originally published online September 29, 2014;
DOI: 10.1542/peds.2014-2299

Counseling

ACOG COMMITTEE OPINION

Number 710 • August 2017

Committee on Adolescent Health Care

This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Committee on Adolescent Health Care in collaboration with committee member Karen R. Gerancher, MD.

Counseling Adolescents About Contraception

EFFECTIVENESS OF FAMILY PLANNING METHODS*

*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 EFFECTIVE

Less than 1 pregnancy per 100 women in a year

6-12 pregnancies per 100 women in a year

18 or more pregnancies per 100 women in a year

LEAST EFFECTIVE

REVERSIBLE

Once in place, little or nothing to do or remember.

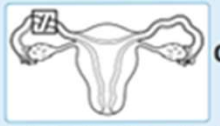
Implant — 0.05%

Intrauterine Device (IUD) — 0.2% LNG; 0.8% Copper T

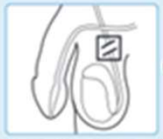
PERMANENT STERILIZATION

After procedure, little or nothing to do or remember.
Use another method for first 3 months (Hysteroscopic, Vasectomy).

Female (Abdominal, Laparoscopic, and Hysteroscopic) — 0.5%



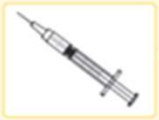
Male (Vasectomy) — 0.15%



REVERSIBLE

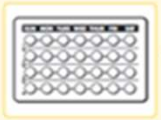
Get repeat injections on time.

Injectable — 6%



Take a pill each day.

Pill — 9%



Keep in place, change on time.

Patch — 9%

Ring — 9%

Use correctly every time you have sex.

Diaphragm — 12%

REVERSIBLE

Use correctly every time you have sex.

Male Condom — 18%

Female Condom — 21%

Withdrawal — 22%

Sponge

12% Nulliparous Women

24% Parous Women

Condoms should always be used to reduce the risk of sexually transmitted infections.

Fertility Awareness-Based Methods

Abstain or use condoms on fertile days.

24%

Spermicide

28%

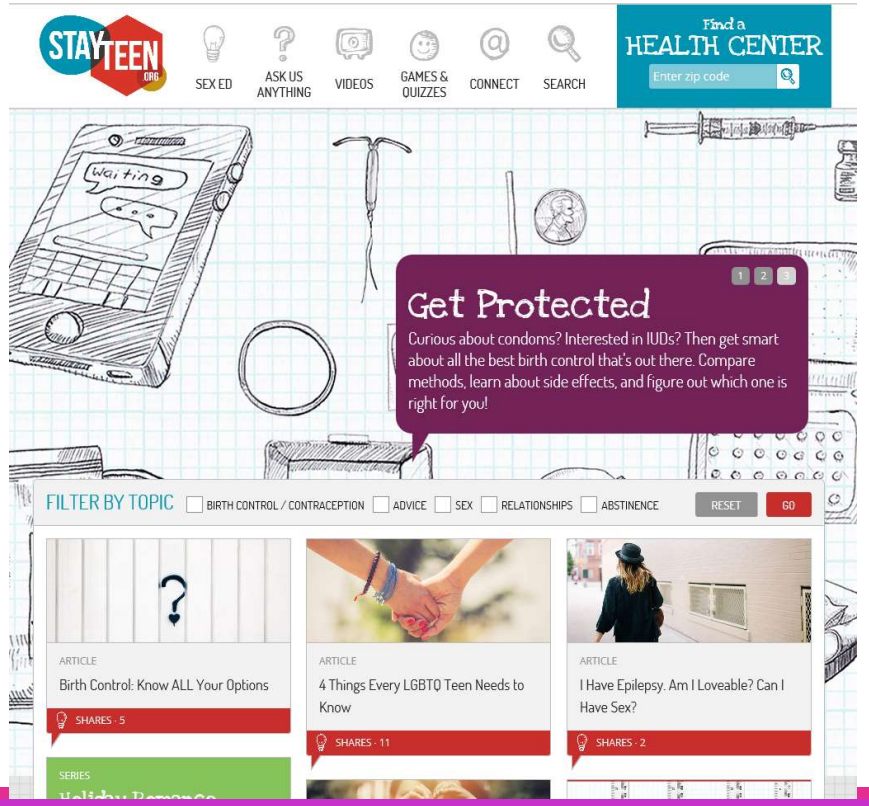
Other Methods of Contraception: (1) **Lactational Amenorrhea Method (LAM):** is a highly effective, temporary method of contraception; and (2) **Emergency Contraception:** emergency contraceptive pills or a copper IUD after unprotected intercourse substantially reduces risk of pregnancy.

Adapted from World Health Organization (WHO) Department of Reproductive Health and Research, Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs (CCP). Knowledge for health project. Family planning: a global handbook for providers (2011 update). Baltimore, MD; Geneva, Switzerland: CCP and WHO; 2011; and Trussell J. Contraceptive failure in the United States. Contraception 2011;83:397–404.

CDC Centers for Disease Control and Prevention National Center for Chronic Disease Prevention and Health Promotion

Bedsider.org

Stayteen.org



Contraception

Most common type of contraception used by adolescent=least effective

- Combined Oral Contraceptive
- Condom
- With drawl

Contraceptive Effectiveness

Proportion of women who will become pregnant over one year of use, by method

Method	Perfect use	Typical use
Implant	0.05	0.05
Vasectomy (male sterilization)	0.10	0.15
Intrauterine device (IUD)		
Levonorgestrel-releasing	0.2	0.2
Copper-T	0.6	0.8
Tubal (female) sterilization	0.5	0.5
Injectable	0.2	6
Pill	0.3	9
Vaginal ring	0.3	9
Patch	0.3	9
Diaphragm	6	12
Sponge**	9/20	12/24
Male condom	2	18
Female condom	5	21
Withdrawal	4	22
Fertility awareness methods***	0.4–5	24
Spermicides	18	28
Emergency contraception	*	*
No method	85	85

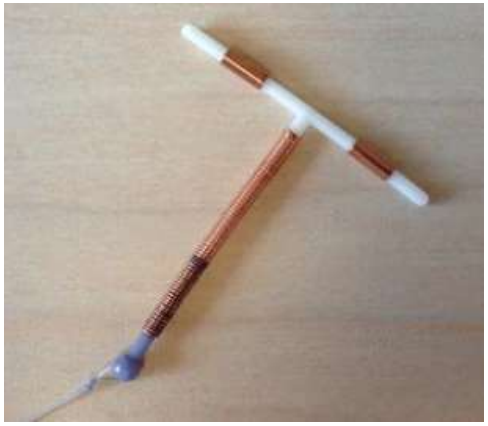
Notes: u = unavailable. "Perfect use" denotes effectiveness among couples who use the method both consistently and correctly; "typical use" refers to effectiveness experienced among all couples who use the method (including inconsistent and incorrect use). *The effectiveness of emergency contraception (EC) is not measured on a one-year basis like other methods. EC is

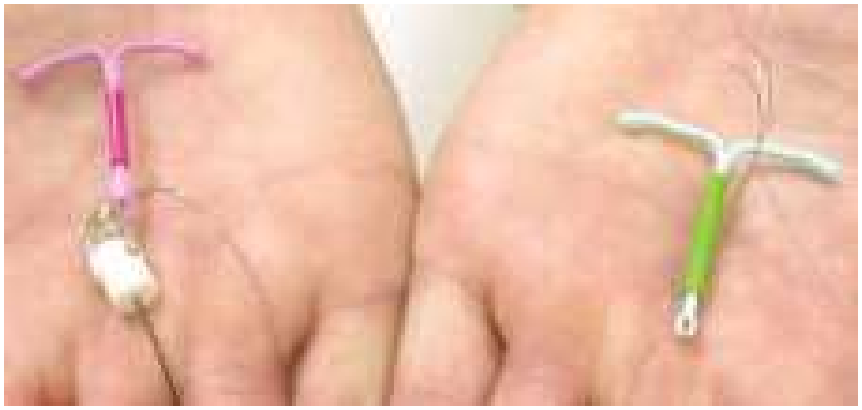
Guttmacher.org contraception effectiveness

Contraception

Long Acting Reversible Contraception=LARC

- Implantable method
- IUDs
  - Copper, Mirena, Skyla, Lilleta, Kyleena





Contraception

Continuation rate of LARC at 12 months=81%

Continuation rate of short acting methods=47%

Failure rate of LARC=0.05-.08%

Failure rate of short acting combined methods=1-9%

http://www.choiceproject.wustl.edu/

Diedrich JT, Klein DA, Peipert JF. Long-acting reversible contraception in adolescents: a systematic review and meta-analysis. Am J Obstet Gynecol 2017;216:364.e12.

Duration

Table 1. Long-Acting Reversible Contraceptive Methods ⇦

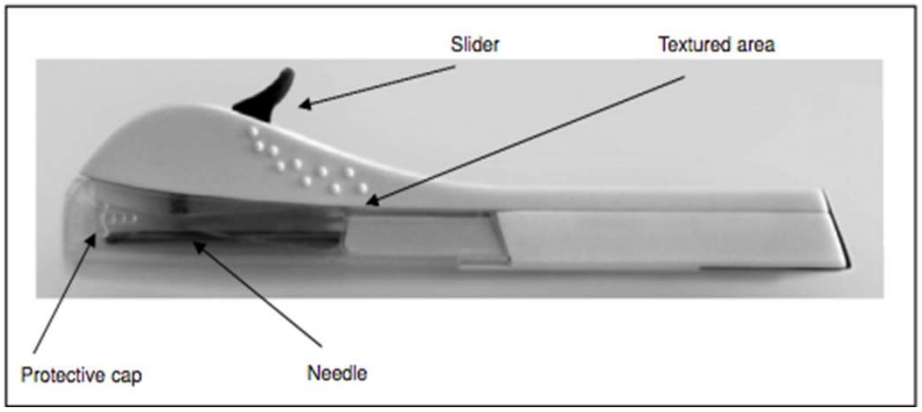
Brand Name	Medication and Device Type (Dose)	Initial Rate of Release (micrograms/day)	FDA-approved Duration of Use	Potential Efficacy Beyond FDA-approved Duration	Identifying Characteristics	Size of Device (Horizontal x Vertical, mm)	Inserter Tube Diameter (mm)	Percentage of Women Experiencing an Unintended Pregnancy in the First Year of Use (Typical Use)*
Kyleena	LNG-IUD (19.5 mg)	17.5	5 years	N/A	Blue strings; silver ring	28 x 30	3.8	0.20†
Liletta	LNG-IUD (52 mg)	19.5	4 years	+1 year‡	Blue strings	32 x 32	4.4	0.20†
Mirena	LNG-IUD (52 mg)	20	5 years	+2 years§,‖	Gray strings	32 x 32	4.4	0.20†
Skyla	LNG-IUD (13.5 mg)	14	3 years	N/A	Gray strings; silver ring	28 x 30	3.8	0.20†
Paragard	Copper T380A IUD (380 mm^2)	NA	10 years	+2 years¶	White strings	32 x 36	4.01	0.80
Nexplanon/ Implanon	Etonogestrel single-rod contraceptive implant (68 mg)	60–70	3 years	+1-2 years#,**	N/A	40 x 2	N/A	0.05

Implantable method

- Effective for 3-5 years
- 68mg etnogesterel
- No SS difference in efficacy based on weight

- Decrease blood loss and dysmenorrhea
- No effect on bone mineral density

- Specific training required
- BREAKTHROUGH BLEEDING



Simmons K, et al. Hormonal contraception and obesity. Fertil and Steril *2016;7: 109-116*
Ali et al. Extended use up to 5 years of the etonogestrel-releasing subdermal contraceptive implant: complarison to levonorgestrel-releasing subdermal implant. Human Reprod 2016: 1-8

Breakthrough bleeding

- COUNSELING

- NSAIDs
  - High dose 5-7 days
- Combined oral contraceptive
  - 20-35mcg pill 1-3 months
- Estrogen
  - 2mg estradiol po x 7 days

- Doxycycline
  - 100mg BID x5 days
- Tranexamic Acid
  - 650mg BID x5da

https://www.uptodate.com/contents/management-of-unscheduled-bleeding-in-women-using-contraception
ACOG CO #735: Adolescent and LARC: Implants and IUD

Intrauterine Device

Safety in adolescent

- No increase risk of infertility
- May be inserted without difficulty
- Possible increased risk of expulsion
- Infection
  - Risk of PID 0-5%
    - Highest if active infection when IUD is placed

Intrauterine Device

Levonorgestrel: 5-7 year

- Mirena
- Liletta
- Effective for treating HMB, dysmenorrhea, endometriosis, hyperplasia
- No difference based on weight

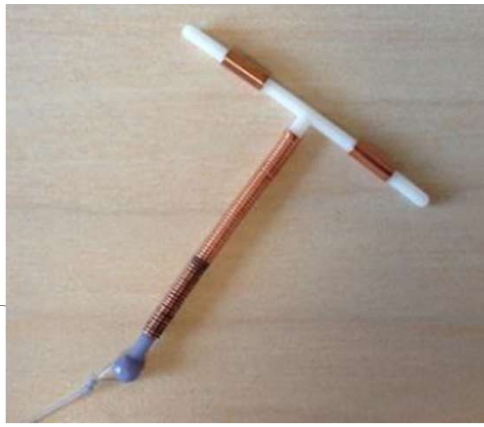
5 year

- Kyleena*

3 year

- Skyla*

Intrauterine Device



Copper

- 10-12 years
- Hormone free
- May increase pain/cramping
- May be used as emergency contraception

Oral Contraception

Combined

- 50mcg
- 30mcg
- Lo-dose
- Drospirenone containing
- Triphasic

Progesterone only***

No difference in efficacy among obese patients (kind of)

Simmons K, et al. Hormonal contraception and obesity. Fertil and Steril *2016;7: 109-116*

Combined COC

Sprintec/Orthocyclin

- Monophasic: .3/.35 estrogen/varying types of progesterone

Necon, Ovral

- Monophasic: 50mcg
- Refractory bleeding

Low dose pill

Loestren, Lo-LoEstren

- 10-25mcg of estrogen
- May have decrease side effects
- Efficacy is equivalent
- +/- increased BTB

Gallo M. et al. 20mcg versus >20mcg estrogen combined oral contraceptives for contraception. Cochrane Database Syst Rev 2005;:CD003989

Drospirenone containing COC

Yasmin, Yaz, Gianvi, Ocella, Zarah

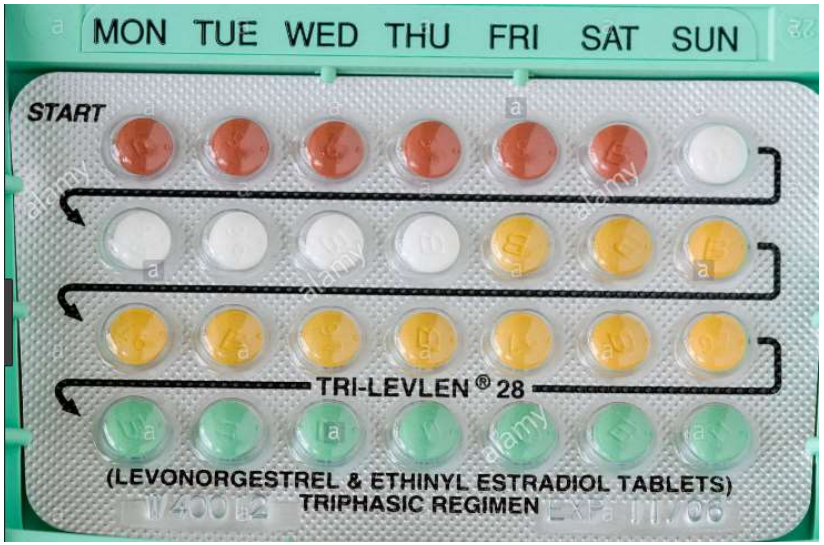
- PCOS
- Has anti-androgenic affect
- Small diuretic affect
- PMS/PMDD
- 24/4 cycle

FDA: association with increase r/o thrombo-embolism but data not strong enough to conclude causality

Triphasic

Why?

- No difference in breakthrough bleeding
- No difference in discontinuation rate



Van Vliet et al. Biphasic versus triphasic oral contraceptives for contraception. Cochrane Database Syst rev. 2001;4

Breast Cancer Update

Prospective Cohort study of 1.8 million Danish women

- Followed for 11 years
- Relative risk among current or recent users;
  - 1.20 [1.14 to 1.26]
  - 1 extra breast cancer per 7960 women per year
  - May be higher with longer use
  - May be lower if used < 5 years

Table 4. Relative Risk of Breast Cancer among Women Using Various Types of Hormonal Contraception Who Were Followed until December 31, 2012.*

Variable	No. of Person-Yr	No. of Breast-Cancer Events	Age-Adjusted Incidence Rate	Adjusted Relative Risk (95% CI)†	Age-Adjusted Risk Difference (95% CI)
			no. of events/100,000 person-yr		*no. of events/100,000 person-yr*
Never used hormonal contraception	7,815,180	5955	55	1.00 (Reference)	Reference
Used hormonal contraception >6 mo previously	4,348,722	2883	58	1.08 (1.03 to 1.13)	3 (1 to 6)
Current or recent use of combined hormonal contraception					
Oral combined ethinyl estradiol, 50 μg					
Norethisterone	52,895	23	46	1.01 (0.67 to 1.52)	−9 (−30 to 12)
Levonorgestrel	73,125	54	64	1.21 (0.93 to 1.59)	9 (−9 to 27)
Oral combined ethinyl estradiol, 20 to 40 μg					
Norethisterone	153,603	39	67	1.09 (0.80 to 1.50)	12 (−12 to 35)
Levonorgestrel	638,936	380	72	1.33 (1.20 to 1.48)	17 (9 to 25)
Norgestimate	635,732	180	72	1.22 (1.20 to 1.48)	18 (5 to 30)
Desogestrel	1,453,690	368	64	1.12 (1.01 to 1.25)	9 (1 to 17)
Gestodene	2,633,355	705	69	1.20 (1.11 to 1.30)	14 (8 to 20)
Drospirenone	503,700	102	60	1.05 (0.86 to 1.28)	6 (−8 to 20)
Cyproterone	272,804	77	90	1.44 (1.15 to 1.81)	36 (11 to 60)
Estradiol valerate and dienogest	6,380	7	101	1.62 (0.77 to 3.41)	46 (−30 to 122)
Nonoral combined hormonal contraception					
Patch	10,842	2	60	0.85 (0.21 to 3.41)	5 (−1 to 11)
Vaginal ring	91,313	20	53	0.97 (0.62 to 1.50)	−2 (−32 to 28)
Current or recent use of progestin-only products					
Oral contraceptive					
Norethisterone	128,848	78	58	1.00 (0.80 to 1.25)	3 (−10 to 16)
Levonorgestrel	10,547	16	102	1.93 (1.18 to 3.16)	47 (−4 to 99)
Desogestrel	77,847	42	69	1.18 (0.87 to 1.60)	14 (−8 to 36)
Nonoral contraceptive					
Implant	42,217	9	46	0.93 (0.48 to 1.79)	−9 (−42 to 25)
Levonorgestrel-releasing intrauterine system	503,441	571	70	1.21 (1.11 to 1.33)	16 (9 to 22)
Depot medroxyprogesterone acetate	19,308	5	51	0.95 (0.40 to 2.29)	−4 (−49 to 42)

* Recent use was defined as discontinuation of hormonal contraception within the previous 6 months.
† Relative risks were adjusted for age, calendar year, level of education, the polycystic ovary syndrome, endometriosis, parity, and family history of premenopausal breast or ovarian cancer.

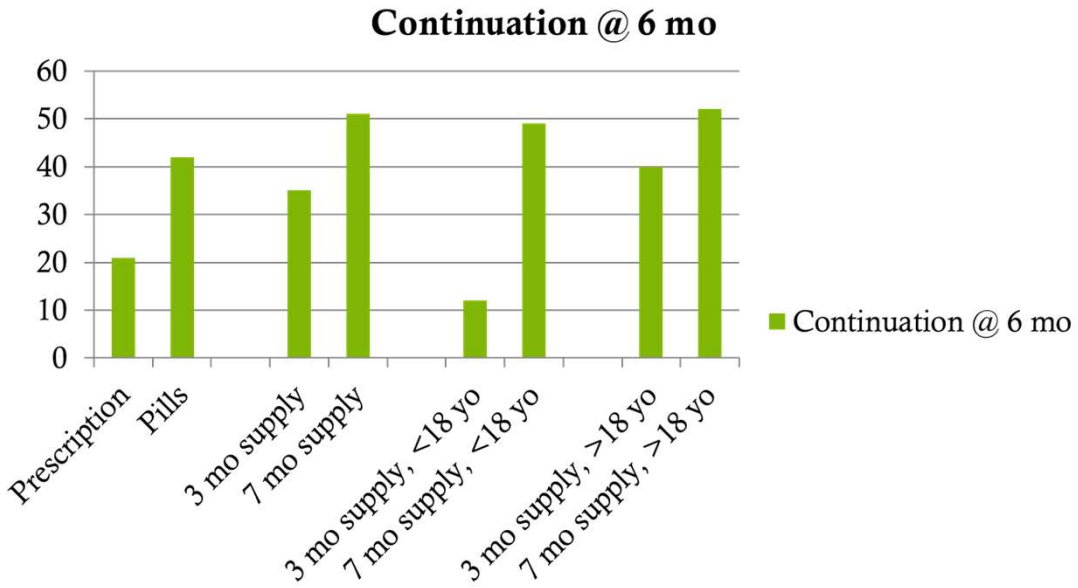
Morch et al. Hormonal Contraception and Breast-cancer risk. N Enlg J Med. Dec 2017

Non-contraceptive benefits of COC

- Dysmenorrhea
- Cycle control
- Reduces menstrual blood loss by 40-50%
- Treatment of Menstrual Migraines*
- Improve hirsutism and acne
- may decrease risk of colorectal, endometrial and ovarian cancer

ACOG PB 110 2010

Helping continuation



Combination Contraception

Contraceptive Ring: Nuvaring

- As or more effective than OCP
- No difference in efficacy based on weight*
- Have patient place it in clinic
- Maybe associated with vaginal irritation, expulsion, discomfort during sex

Contraceptive patch: ortho-evra/xulane

- As or more effective than COCs
- Maybe less effective in obese women*
- Slightly increased r/o thromboembolism compared to COC
  - Data contradictory

*Obese Women: Subset analysis

Brache V. Contraceptive vaginal rings: a review.
Contraception.2010 Nov;82(5):418-27

Medroxyprogesterone acetate (Depo)

Weight gain

- Over 36 months gained 5.1kg more than OC users
- Only contraception regularly associated with weight gain

BMD

- Decrease in BMD
- Longer use worsens BMD and may increase r/o fracture
- Reversible in younger patients

Consider in patients with Sickle Cell or Seizures

No difference in efficacy among obese women

Modesto W[1], Bahamondes MV[1], Bahamondes L[1] Prevalence of Low Bone Mass and Osteoporosis in Long-Term Users of the Injectable Contraceptive Depot medroxyprogesterone acetate . J Womens Health (Larchmt) 2015 Aug;24(8):636-40.

Berenson A, et al. Changes in weight, total fat, percent body fat, and central-to-peripheral fat ratio associated with injectable and oral contraceptive use. Am J Obstet Gynecol 2000.

Emergency Contraception

Over the counter*

ACOG Practice bulletin #69: Emergency Contraception. Obstet Gynecol 2005; 106:1443.

Emergency Contraception

Levonorgestrel 0.75 mg- take 1 tab and repeat in 12 hours OR
Levonorgestrel 1.5- 1 tab in a single dose

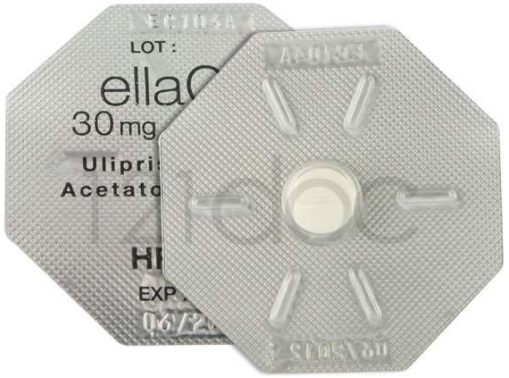
- Up to 72 hours post intercourse*
- Failure rate up to 3 %
- $50

ACOG Practice bulletin #69: Emergency Contraception. Obstet Gynecol 2005; 106:1443.

Emergency Contraception

Ella/ulipristal- 1 tab single dose

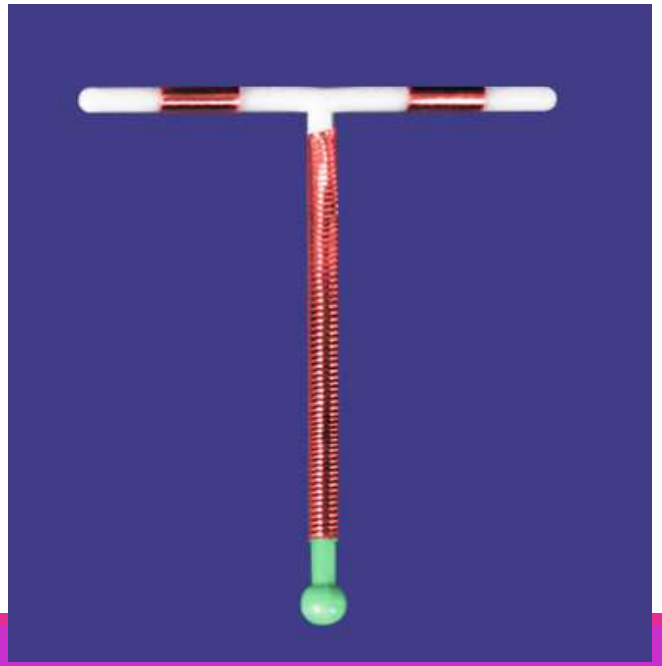
- Up to 120 hours post intercourse
- Failure rate 1.4%
- $51



Emergency contraception

Copper IUD

- Up to 120 hourspost intercourse
- Failure rate <1%



Questions?

Emergency Contraception

COC

- 2-4 pills repeat in 12 hours
- Efficacy not well studied

Twenty-one brands of oral contraceptives that can be used for emergency contraception (EC) in the United States

Brand	Company	Pills per dose*	Ethinyl Estradiol per dose, microgram	Levonorgestrel per dose, mg•
Plan BΔ	Barr	1 white pill	0	0.75
Ovral	Wyeth-Ayerst	2 white pills	100	0.50
Ogestrel	Watson	2 white pills	100	0.50
Cryselle	Barr	4 white pills	120	0.60
Levora	Watson	4 white pills	120	0.60
Lo/Ovral	Wyeth-Ayerst	4 white pills	120	0.60
Low-Ogestrel	Watson	4 white pills	120	0.60
Levlen	Berlex	4 light orange pills	120	0.60
Nordette	Wyeth-Ayerst	4 light orange pills	120	0.60
Portia	Barr	4 pink pills	120	0.60
Seasonale	Barr	4 pink pills	120	0.60
Trivora	Watson	4 pink pills	120	0.50
Tri-Levlen	Berlex	4 yellow pills	120	0.50
Triphasil	Wyeth-Ayerst	4 yellow pills	120	0.50
Enpresse	Barr	4 orange pills	120	0.50
Alesse	Wyeth-Ayerst	5 pink pills	100	0.50
Lessina	Barr	5 pink pills	100	0.50
Levlite	Berlex	5 pink pills	100	0.50
Lutera	Watson	5 white pills	100	0.50
Aviane	Barr	5 orange pills	100	0.50
Ovrette	Wyeth-Ayerst	20 yellow pills	0	0.75
Jolessa	Barr	4 pink pills	120	0.60
Lybrel	Wyeth-Ayerst	6 yellow pills	120	0.54
Quasense	Watson	4 white pills	120	0.60
Seasonique	Duramed	4 blue-green pills	120	0.60

* The treatment schedule is one dose as soon as possible after unprotected intercourse, and another dose 12 hours later. However, recent research has found that both doses of Plan B or Ovrette can be taken at the same time.
• The progestin in Cryselle, Lo/Ovral, Low-Ogestrel, Ogestrel, Ovral, and Ovrette is norgestrel, which contains two isomers, only one of which (levonorgestrel) is bioactive; the amount of norgestrel in each tablet is twice the amount of levonorgestrel. Levonorgestrel regimens also can be formulated by substituting double the amount of norgestrel as is indicated for levonorgestrel.
Δ Plan B is the only dedicated product specifically marketed for emergency contraception in the United States. Preven, a combined emergency contraception pill, is no longer available for the US market.
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