

Nelson: Contraceptive Update 2025

Contraceptive Update 2025

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Conflict of Interest Disclosure Anita L. Nelson, MD

Grants/ Research	Daré Bioscience, Viatrix Pharmaceuticals Inc, Organon, Sebela Pharmaceuticals, Sumitomo Pharma America
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Learning Objectives

At the end of this presentation, the participant will be able to:

- Discuss the contribution contraception makes to women's health.
- Describe barriers to successful contraceptive use.
- Counsel women on the safety and efficacy of each of the current methods in typical use.
- Outline approach to implement the US MEC and Selected Contraceptive Practices in practice.

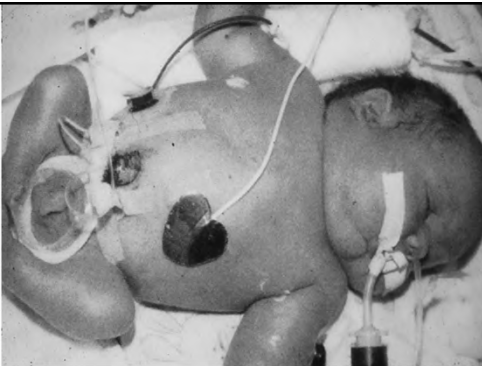
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Why is Contraception Vitally Important to Couples in the US in 2025

- 45% of US pregnancies are "unintended"¹
 - ◆ Rates declined to 45% after IUD and implant use increased
 - ◆ A quarter of unintended pregnancies end in abortion
 - ◆ Outcomes of unintended births poorer
- Maternal mortality ratios increasing in US^{2,3}
- Serious maternal morbidity rates also increasing
 - ◆ Over 50,000 women nearly die from pregnancy and pregnancy related causes each year⁴

1. Finer LB. *N Engl J Med*. 2016;374(9):843-52.
2. Kavanaugh ML, et al. *Obstet Gynecol*. 2015;126(5):917-27.
3. Berg CJ, et al. *Obstet Gynecol*. 2010;116(6):1302-9.
4. Creanga AA, et al. *J Womens Health (Larchmt)*. 2014;23(1):3-9.

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If 100 couples have unprotected intercourse for 12 months, what percent will get pregnant?

- A. 20%
- B. 38%
- C. 62%
- D. 85%

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First Year Failure Rates

	"Typical Use"	Perfect Use
Implant	0.1%	0.1%
IUD – hormonal	0.4%	0.3%
IUD – copper	0.8%	0.6%
DMPA	4%	0.2%
Pills, patches, ring	7%	0.3%
Male condom	13%	2%
Fertility awareness method	2-23%	0.4-5%
Female barriers	17-21%	4-20%
Spermicide	17-21%	12-16%
Withdrawal	20%	4%
No method	85%	85%

Bradley SE. Contraceptive Technology 22 ed. Pg. 130-131. Anna L. Nelson, MD - 05/02/25 16:34 CU 2025-09-26 MedEd Gateway Clinic Virtual 8

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Tiers of Contraceptive Efficacy

Longer Term	Implants, IUDs
Combined Hormonal	DMPA Injections Vaginal Rings, Transdermal Patches Oral Contraceptive Pills
Barriers and Behaviors	External (Male) Condoms Diaphragms, Withdrawal, FAM, NFP Cervical Cap, Internal (Female) Condom, Spermicides

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Practice Resources & Tips

- US Medical Eligibility Criteria updated 7/16¹
 - ◆ <https://itunes.apple.com/us/app/contraception/id595752188?mt=8>.
- Selected Practice Recommendations, contraception Update, 2016² key points
 - Quick Start (same day start) saves money³
 - Adequate supplies
 - Counsel from most to least effective
- Bedsider.org
- One key question (or maybe 3-5 questions)

1. CDC US MEC for Contraceptive Use, 2016. <http://www.cdc.gov/reproductivehealth/contraception/usmec.htm>
2. CDC US Selected Practice Recommendations for Contraceptive Use, 2013. <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6205a1.htm>.
3. Wilkinson TA, et al. JAMA Netw Open. 2019;2(9):e1911063.

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Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use

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Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use

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Starting Contraceptive Methods: Anytime if Not Pregnant

Method	Exams/Tests Needed	Back-up Needed
Copper IUD	Bimanual exam & cervical inspection	None
LNG-IUSs	Bimanual exam & cervical inspection	7 days**
Implant	None	7 days*
Injection	None	7 days**
Combined hormonal contraceptives	BP	7 days*
Progestin-only pills	None	2 days*

* If >5 days since LMP ** If >7 days since LMP


CDC US Selected Practice Recommendations. <https://www.cdc.gov/mmwr/volumes/65/rr/rr6504a1.htm> last accessed 2022-06-16

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Etonogestrel Contraceptive Implant

- Single implant rod (4 cm x 2 mm) made of ethylene vinyl acetate
- Contains 68 mg of etonogestrel (ENG)
- Effective for at least **4 years** (ACOG)
- CYP-450 drugs lower efficacy

- MOA: Inhibits ovulation and thickens cervical mucus
- **Rapid** return of fertility



1. McNicholas C, et al. *Am J Obstet Gynecol.* 2017;216(6):586.e1-586.e6.
2. Ali M, et al. *Hum Reprod.* 2016;31(11):2491-2498

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Etonogestrel Contraceptive Implant Pearls

- Most effective reversible method in typical use
- Fewest number of US MEC category 4 conditions
- Efficacy not diminished by obesity^{1,2}
- 0.06mm membrane controls rate of release of ENG
- Immediate postpartum use safe and effective with no adverse effects on breastfeeding^{3,4,5}
- Continuation rates good when combined with LNG EC⁶
- Induces regression of EIN⁷

1. Xu H, et al. *Obstet Gynecol.* 2012;120(1):21-6; 2. Brito MB, et al. *Contraception.* 2009;80(6):519-26.
3. Gurtcheff SE, et al. *Obstet Gynecol.* 2011;117(5):1114-21; 4. Krashin JW, et al. *Am J Obstet Gynecol.* 2025;Epub ahead of print; 5. Levi EE, et al. *Contraception.* 2025;144:110806; 6. Gawron LM, et al. *Contraception.* 2025;148:110938; 7. Wong S, et al. *Obstet Gynecol.* 2019;133(4):780-782.


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Etonogestrel Contraceptive Implant Pearls

- Bleeding patterns more predictable¹
 - ◆ First 3 months – only 1/3 have satisfactory patterns
 - ◆ Second 3 months – 2/3s have satisfactory patterns
- Higher concentrations of ENG → higher bleeding irregularities²
- Therapies studied: cyclic CHCs³, Norethisterone (NETA)⁴, tamoxifen^{5,6,7}, NSAIDs⁸, tranexamic acid⁸, ulipristal acetate⁹
- Other therapies offered: POP, Cox-2 inhibitors
 - ◆ Personal favorite; monthly vaginal contraceptive ring used extended cycle

1. Mansour D, et al. *Contraception.* 2011;83(3):202-10.; 2. Lazorwitz A, et al. *Obstet Gynecol.* 2019;134(4):807-13.
3. Hou MY, et al. *Eur J Contracept Reprod Health Care.* 2016;21(5):351-5.; 4. Andrade MCR, et al. *Am J Obstet Gynecol.* 2025; S0002-9378(25)00586-1.; 5. Simmons KB, et al. *Contraception.* 2017;95(2):198-204.; 6. Friedman JG, et al. *J Pediatr Adolesc Gynecol.* 2022;35(3):341-45.; 7. Edelman AB, et al. *Obstet Gynecol.* 2020;136(2):323-32.; 8. Hamdaoui N. *Rev Prat.* 2025;75(3):303-305.; 9. Zigler RE, et al. *Obstet Gynecol.* 2018;132(4):888-94.

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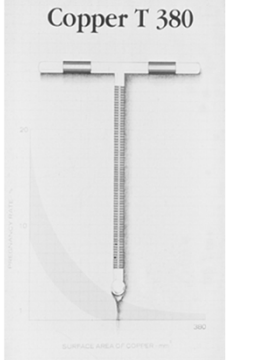


“Betadine stripping” technique to visualize implant for removal

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Copper T 380

- Most effective nonhormonal method
- Approved 10 years of use
 - May extend to 12 years
- Rapidly reversible
- Mechanisms of action (MOA)
 - as ongoing method – “functional spermicide”
 - as EC - may have interceptive action due to placement procedure



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Condition of Ova Recovered From Fallopian Tubes at Ovulation After Timed Intercourse

Group	Normal Development	No Development	Uncertain Or Abnormal Development
Control	10	3	7
All IUDs	0	9	5
Lippes loop	0	3	1
TCu 200	0	2	3
Progestin IUD	0	4	1

Copper-T IUD is a contraceptive

Alvarez F, et al. *Fertil Steril.* 1988;49(5):768-73.

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CuT-380A Copper IUD Pearls

- Place same day as visit, during elective C-section, postpartum, post-abortion^{1,2,3} Add extra length to tailstrings and trim later
 - ◆ High rates rapid repeat pregnancy if LARC not provided^{4,5}
- Most effective emergency contraceptive
- Very appropriate for nulliparous women⁶
 - ◆ 30% clinicians have misconceptions⁷
- Increases blood loss 30-50% - reverse with high dose NSAIDs
- Control vasovagal reaction with tight contraction of limbs⁸

1. Whitaker AK, et al. *Contraception.* 2019;97(1):2-13.
 2. Lopez LM, et al. *Cochrane Database Syst Rev.* 2015;26(6):CD003036.pub3.
 3. Roe AH, et al. *Contraception.* 2019;99(1):2-9.
 4. Wilkinson B, et al. *Contraception.* 2018;97(6):559-64.
 5. Sonalkar S, et al. *Obstet Gynecol.* 2018;132(5):1211-21
 6. Grimes DA, et al. *Obstet Gynecol.* 2012;120(6):1477-8.
 7. ACOG Committee Opinion 539. *Obstet Gynecol.* 2012;120(4):983-8.
 8. Krediet CT, et al. *Circulation.* 2002;106(13):1884-9.

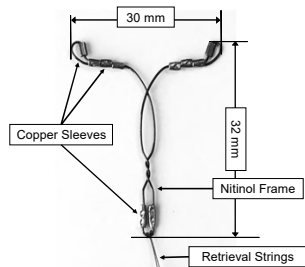
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Miudella (VeraCept):

A New FDA-Approved Intrauterine Copper Contraceptive

- 175 mm² of copper
 - ◆ Placed at cervix and cornua
- Nitinol frame
 - ◆ Nitinol used in cardiac stents
 - ◆ Shape memory allows preloading
 - ◆ Allows 3.7 mm diameter inserter
- Novel design
 - ◆ Compliant arms
 - ◆ Fundus seeking
 - ◆ Pre-cut strings
- Providers will need placement training



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Miudella (VeraCept) 3-Year Phase III Trial Outcomes

- Phase 3 trial: 64.0% participants were nulliparous
- 1-year pregnancy rate (PI) 0.94; 3-years (life table) 2.47%
- Expulsion rate 2.2% first year; 3.9% all 3 years
- Successful placement: 98.8%
- Continuation rates: 1 year 78.9%
3 years 49.6%

Creinin MD. *Contraception.* 2025;143:110771.

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Miudella (VeraCept): 3-Year Bleeding and Pain

- 10,661 subjects in Phase 3 trial

	Heavy Bleeding	Dysmenorrhea	Discontinuation from either
0-3 months	69.0%	63.8%	3.7%
> 3-6 months	25.0%		
> 6-12 months	23.1%		
> 12-24 months	8.9%		
> 24-36 months	4.7%	5.2%	1.4%

- Over 3-years discontinuation due to HMB 6.1%; dysmenorrhea 3.9%; pelvic discomfort 1.7%; pelvic pain 1.3%

Gawron KM. *Contraception.* Abstract #66 127(2023) 110146.

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Copper IUD(s)

- Pain with placement – no consistent prevention for general use but COX2 inhibitors may help^{1,2,3,4}
- NSAIDs reduce later cramping and bleeding⁵
- Menstrual pain and bleeding decrease over time; intermenstrual problems do not⁶
- IUDs may be retained during PID treatment⁷

1. Hubacher D, et al. *Am J Obstet Gynecol.* 2006;195(5):1272-7.
 2. Dijkhuizen K, et al. *Hum Reprod.* 2011;26(2):323-9.
 3. Chor J, et al. *Contraception.* 2012;85(6):598-62.
 4. Gemzell-Danielsson, et al. *Acta Obstet Gynecol Scand.* 2019;98(12):1500-13.
 5. Godfrey EM, et al. *Contraception.* 2013;87(5):549-66.
 6. Hubacher D, et al. *Contraception.* 2009;79(5):359-62.
 7. CDC US Selected Practice Recommendations. <http://www.cdc.gov/mmwr/volumes/65/tr/pdfs/tr6504.pdf> last accessed 2016/07/29

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**3 Daughters
Frameless Copper
IUD**

In development

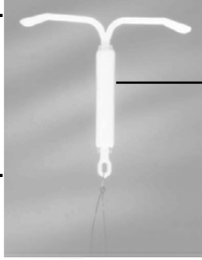


<https://www.forbes.com/sites/geristengel/2025/06/20/fixing-the-pain-how-one-company-is-reimagining-the-iud/>

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Levonorgestrel-Releasing Intrauterine Systems (LNG IUS)



Steroid reservoir

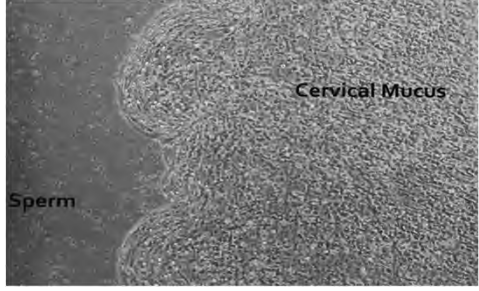
- 2 brands available
- Levonorgestrel 20 mcg/day
- Approved 8 years of use
- Most effective medical treatment for HMB

1. Kerns JL, et al. *Am J Obstet Gynecol.* 224;231(6):628.e1-e10

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Impenetrable Cervical Mucus - MOA



Cervical Mucus

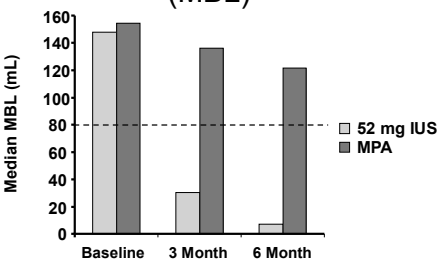
Sperm

Lewis RA, et al. *Fertil Steril*, 2009;92(3) Suppl: S27.

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Median Menstrual Blood Loss (MBL)



Time Point	52 mg IUS (mL)	MPA (mL)
Baseline	~145	~155
3 Month	~35	~135
6 Month	~10	~120

Nelson AL. Presented at XIX FIGO World Congress, So Africa, Oct 2009.

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Smaller Size LNG-IUSs (28 x 30 mm)

- LNG-IUS-12 mcg/day
 - ◆ Approved for 5 years
 - ◆ Less amenorrhea (22% at 5 years)
 - ◆ Not treatment HMB, but decreases blood loss and dysmenorrhea
- LNG-IUIS-8 mcg/day
 - ◆ Approved for only 3-years

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52mg LNG-IUS Headlines 2025: Breast Cancer Concerns

- Study of 61,010 women in Korean National Health Insurance Claims database
- Results: number of breast cancer cases/100,000 person years
 - ◆ LNG-IUS users 223; non-LNG IUS users 154; HR 1.38
- BUT – insurance doesn't cover IUD for contraception, only for AUB, endometriosis, leiomyoma
- Risk greatest in 1st 3 years (HR 5.40); after 5 years no increase
 - ◆ Cannot be facilitating tumorigenesis – that happened 8 years ago!
- Association is not causation

Yuk J-S. *Obstet Gynecol.* 2025;45(5):523-31.

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Discomfort with IUD Placement

- CDC, ACOG and AMA have focused attention on need to manage procedural pain^{1,2,3}
 - ◆ Clinicians tend to underestimate the pain patients report⁴
 - ◆ Higher levels of anxiety and expectations of pain increase pain reported⁵
- 80% of placebo patients rated procedure pain as tolerable⁶
- Agents supported by evidence to reduce procedural pain²
 - ◆ Lidocaine-paracervical block or mucosal application (spray best)
 - ◆ Lidocaine-prilocaine cream – apply to cervical canal
 - ◆ Misoprostol-conflicting data due to side effects

1. Curtis KM, et al. *MMWR Recomm Rep.* 2024;73(3):1-77; 2. ACOG Clinical Consensus No. 9. *Obstet Gynecol.* 2025;146(1):161-177; 3. Lantos E, et al. *AMA J Ethics.* 2025;27(2):E129-36; 4. Akintomide H, et al. *Eur J Contracept Reprod Health Care.* 2015;20(4):319-26; 5. Callahan DG, et al. *J Pediatr Adolesc Gynecol.* 2019;32(6):615-621; 6. Envall N, et al. *Am J Obstet Gynecol.* 2024;231(5):524.e1-524.e7

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Discomfort with IUD Placement

- Newer evidence: Mepivacaine intra-uterine instillation reduced pain (93.3% found tolerable)¹
- Special instrumentation helps:² short specula, Goldstein cervical stabilizer, plastic uterine sounds
- NSAIDs not effective for procedural pain, but reduce postprocedural pain³
- Secret shopper survey of office about treatments to reduce pain. 2/3's provided information. 85% of those said ibuprofen, 27.6% said lidocaine⁴
- High risk teens benefited from conscious sedation⁵

1. Envall N, et al. *Am J Obstet Gynecol.* 2024;231(5):524.e1-524.e7; 2. Bayer LL et al. *Am J Obstet Gynecol.* 2025;232(5):409-421; 3. ACOG Clinical Consensus No. 9. *Obstet Gynecol.* 2025;146(1):161-177; 4. Sharma M et al. *Contraception.* 2025;147:110913; 5. Ross M, et al. *J Pediatr Adolesc Gynecol.* 2024 Aug;37(4):433-437.

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DMPA Injectable Contraceptive Formulations

- DMPA 150mg IM every 11-13 weeks
 - ◆ Branded product
 - ◆ Generic version
- DMPA – SQ 104 mg/0.65mL
- Synthetic analog of 17 α -hydroxy-progesterone
- Microcrystals suspended in an aqueous solution
- MOA – thickened cervical mucus and profound and persistent ovulation suppression

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DMPA Practice Recommendations to Increase Access and Contraception Success

- No pelvic exam or pap smear needed prior to initiation
- Quick Start for initiation and late re-injection¹
- No pregnancy test needed prior to any injection unless the patient has had unprotected intercourse or has symptoms of pregnancy
- Always provide EC because patients can return late for reinjection
- Reinjection without need of pregnancy testing or back up method may be routinely extended by 2-4 weeks beyond labeled date²

1. Nelson AL, et al. *Contraception.* 2007;(75(2):84-7.
2. Steiner MJ, et al. *Contraception.* 2008;77(6):410-4.

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DMPA Pearls

- May safely be given immediately post partum to breastfeeding women^{1,2}
 - ◆ No increase in postpartum depression or reduced breast feeding³
- Need to choose needle size and injection site by patient's BMI. Do not massage site immediately after injection.
- Improves health-related quality of life⁴
- Slow return to fertility (esp. obese women)
- Temporarily (but reversibly) reduces BMD⁵
 - ◆ ACOG states that should not influence practices⁶
- Does not increase HIV transmission⁷
- Case-control study showed increase in risk of meningioma (0.05%)⁸

1. Halderman LD. *Am J Obstet Gynecol.* 2002;186(6):1256-8.; 2. Gallo MF, et al. *Contraception.* 2024;110(726); 3. Tsai R, et al. *Contraception.* 2010;82(2):174-7.; 4. Wanyonyi SZ, et al. *Contraception.* 2011;84(5):e17-22.; 5. Raine-Bennett T, et al. *Obstet Gynecol.* 2019;134(3):581-589.; 6. ACOG Committee Opinion No. 415. 2008 Sep.; 7. ECHO Trial Consortium. *Lancet.* 2019;394(10195):303-313.; 8. Roland N et al. *Erratum in: BMJ.* 2024; 384:e078078.

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Norethindrone Progestin-Only Pills: The "Go-to-Pill"

- Low-dose 0.35 mg norethindrone, 28 active pills, no placebo
- Very safe
 - ◆ Virtually every women can use
 - ◆ 1 absolute contraindication (US MEC Cat 4)
- More susceptible to drug-drug interactions
- Few complications
 - ◆ No cosmetic issues
 - ◆ Lower metabolic impacts than COCs
- Easy to use
 - ◆ One tablet every day
 - ◆ No need to buy extra packs to close time gaps
- MOA: thickens cervical mucus, some ovulation suppression
- OTC progestin-only pill with levonorgestrel now available

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Drospirenone-Only Oral Contraceptive

- 4.0mg DRSP in 24/4 formulation¹
- Suppresses ovulation as well as COC, thickens mucus
- Missed pill rules same as for COC
 - ◆ No need or back-up method if < 24 hours missed²
- US: Pearl Index = 4.00
- Remember DRSP contraindicated with renal impairment, adrenal insufficiency, hepatic tumors or impairment

1. Archer DF, et al. *Contraception*. 2015;92(5):439-44.
2. Duijkers IJ, et al. *Contraception*. 2016;93(4):303-09.

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“Birth control pills are not dangerous, but there are dangerous women out there. Find them and keep them away from the pill, and the pill will do its work well.”

Paul Brenner, M.D.
Professor, OB-GYN
USC

“Pregnancy is hazardous to a woman’s health.”

Anita L Nelson, M.D.

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Combined Oral Contraceptive Pills

- Safe and well-tested -- the gold standard:
 - ◆ 65 years of clinical experience in US
 - ◆ Best studied medication in history
- Failure rate with consistent and correct use < 1%
- Typical first year failure rate is 7%
- Rapidly reversible:
 - ◆ Only 2-week average delay in return to fertility
- Extensive non-contraceptive benefits

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Pill Safety: 39 Year Follow-up

- 46,112 women followed for up to 39 years
 - ◆ 378,006 women-years in never-users
 - ◆ 819,175 women-years in ever-users
- **Significantly lower rate of death in prior OC users from:**
 - ◆ Any cause (12% reduction)
 - ◆ All cancers
 - ◆ All circulatory diseases, ischemic heart disease, and all other diseases

Hannaford PC, et al. *BMJ*. 2010;340:c927.

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Non-Contraceptive Benefits of CHCs

- | | |
|---|---|
| ● Treatment for <ul style="list-style-type: none">◆ Heavy menstrual bleeding◆ Dysmenorrhea◆ Anovulatory cycling◆ Acne, hirsutism◆ Pain from endometriosis | ● Reduces risk of <ul style="list-style-type: none">◆ Endometrial cancer◆ Ovarian cancer◆ Ovarian cysts |
| | ● Extended cycle use reduces catamenial problems |

Lethaby A, et al. *Cochran Database Syst Rev*. 2019;2:CD000154.pub3

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Estrogens in COCs (Older One)

- Ethinyl estradiol is found in all but 2 modern pill formulations
 - ◆ Resistant to hepatic metabolism
 - Long half-life for better cycle control
 - But multiple passes thru liver increases clotting factor production and increases risk for thromboembolism

Didembourg M, et al. *Contraception*. 2025;142:110727.

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Estrogens in COCs (Newer Ones)

- Two natural estrogens now available
 - ◆ Estradiol in Natasia has short half-life; less VTE risk
 - Only formulation with FDA indication for treatments of HMB
 - ◆ As effective as 52mg LNG-IUD
 - ◆ Estetrol in Nextstellis not metabolized hepatically and is tissue selective (avoids liver and breast stimulation). VTE biomarkers not significantly increased

Didembourg M, et al. *Contraception*. 2025;142:110727.

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COC Pearls

- High failure rates seen in obese women due primarily to behaviors^{1,2}
- Significant increase in failure seen in clinical trials of hormonal contraceptives over time ("creeping pear")²
- Provision of 13 cycles of pills all at once halves unwanted pregnancy and abortion rates³
- Most CHC users have no effect or beneficial effect on mood⁴
 - ◆ Less androgenic progestins have fewer mood effects⁴
 - ◆ Continuous and non-oral CHC use have fewest mood complications⁴

1. Westhoff CL, et al. *Contraception*. 2010;81(6):474-80; 2. Trussell J, et al. *Contraception*. 2013;88(5):604-10; 3. Foster DG, et al. *Obstet Gynecol*. 2011;117(3):568-72; 4. Schaffer J, et al. *Eur J Contracept Reprod Health Care*. 2016;21(5):347-55; 5. Henderson JT, et al. *Obstet Gynecol*. 2010;116(6):1257-64; 6. Michels KA, et al. *JAMA Oncol*. 2018;4(4):516-521; 7. Mongiovi JM, et al. Abstract 64125, AACM Annual Meeting 2019

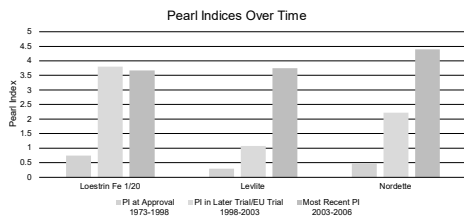
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Pearl Indices In Initial FDA Registration Studies Increased In Later Trials



PI = Pearl Indices
Sourced from publicly available NDA Reviews
Due to sensitive pregnancy testing and inconsistent use¹

Trussell J, et al. *Contraception*. 2013;88(5):604-10.

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COC Headlines 2025

- GLP1-RA may reduce potency of oral contraceptives while increasing fertility of women with weight loss¹
- Psychotropic drugs do not increase failure rate of COCs but do increase side effects²
- WHO classified combined oral contraceptives as carcinogen (breast, cervix and liver) in 2008
 - ◆ Social media sites highlighting now and raising fears
- Recent systematic review – no association with hepatic carcinoma for ever vs never COC users³

1. Zhu H, et al. *J Drugs Dermatol*. 2025;24(6):638.
2. Boehnke T et al. *Am J Obstet Gynecol*. 2025;Epub ahead of print.
3. Watling CZ et al. *Lancet Oncol*. 2025;ePub ahead of print.

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CDC Headlines 2025

- Desogestrel in COC associated in case-controlled study with meningioma (number needed to treat 67,300)¹
- Rates of ischemic stroke and MI doubled by hormonal contraceptives (except IUS)²
 - ◆ Absolute rate still very low
- Risk of VTE by estrogen/progestin dose and combinations showed strong variation between formulations, but also wide confidence levels³

1. Roland N et al. *Contraception*. 2025;389:e083981.
2. Yonis H, et al. *BMJ*. 2025;388:e082801.
3. Yonis HGH. *JAMA*. 2025;333(15):1358-1361.

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Application of Contraceptive Patch on Abdomen



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Updates on Contraceptive Patch

- EE/NGMN patch – 2 generic versions
 - ◆ Area under curve EE 60% higher than 35mcg pill when used 21/7 pattern
 - ◆ Area under curve EE increased by 2.22 pg/mL (11%) per week when used continuously for 12 weeks¹ Not recommended
- Counselling about CHC’s often neglects to include patch²
- EE/LNG patch – EE exposure like 35 mcg pill
- All patches only for BMI < 30 kg/m²

1. Lavelanet AF, et al. *Contraception*. 2017;95(6):578-585.
 2. Craig AD, et al. *Contraception*. 2019;99(2):104-110.

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One Month Contraceptive Vaginal Ring

- Very low dose
 - ◆ 120 mcg/day etonogestrel
 - ◆ 15 mcg/day ethinyl estradiol
- Flexible
- Transparent
- Outer diameter: 54 mm
- Thickness: 4 mm
- One ring per cycle: 3 weeks ring-in, 1 week ring-out on label



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One Month Contraceptive Ring Update

- Extended cycle (once a month) effective¹
- Prolonged use of single ring up to 6 weeks²
- Women with higher BMIs same efficacy as normal weight,² but lower systemic EE levels³
- Better cycle control of HMB than most COCs⁴
- VTE and ATE similar to COCs, even those with LNG⁵
- Generic version now available

1. Guazzelli CA. *Contraception*. 2009;80(5):430-5.
 2. Dragoman M. *Contraception*. 2012;7824(12):1032-3.
 3. Westhoff CL, et al. *Am J Obstet Gynecol*. 2012;207(1):e1-6.
 4. Dahiya P, et al. *Eur J Obstet Gynecol Reprod Biol*. 2016;147-51.
 5. Dinger J, et al. *Obstet Gynecol*. 2013;122(4):800-8.

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Segestrel Acetate/EE Vaginal Ring



One ring used repetitively 21/7 for 13 cycles
 PI = 2.98%

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Impact of Inappropriate Warning Nocebo or Noise?

- In original OC trials for menstrual irregularity showed that counseling women given placebos about OC side effects increased the probability those women would suffer those OC side effects
- “Because Level 1 evidence documents no important increase in nonspecific side effects with oral contraceptives, counseling about these side effects or including those in package labeling is unwarranted and probably unethical.”¹

1. Grimes DA, et al. *Contraception*. 2011;83:5-9.

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“Ten months ago, I would have called this (the condom) an invention of the devil, but now I find that its inventor must have been a man of good will ...”

Jacques Casanova, 1758

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External (Male) Condom

- Correct and consistent use: 2% failure¹
- Typical first year failure rate: 13%¹
- Advantages:
 - ◆ Male participation
 - ◆ Protects well against STDs
 - ◆ Inexpensive
 - ◆ Cervical dysplasia reduced
 - ◆ Readily available
- Special applications:
 - ◆ Premature ejaculation
 - ◆ Antisperm antibody
 - ◆ Female allergy to sperm

1. Bradley SE, et al. *Contraceptive Technology* ed. 22. page 130-1.

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External (Male) Condoms: Sizes

- Snug fitting
 - ◆ Beyond7, Studded Beyond 7, Exotica Snugger Fit, LifeStyles Snugger Fit, Trojan Ultra Fit
- Larger size—more headroom
 - ◆ Trojan Ultra Pleasure, Trojan Very Sensitive, Bareback, Trojan Her Pleasure, Midnight Desire, Pleasure Plus, LifeStyles Xtra Pleasure, Inspiral, Durex Enhanced Pleasure, LifeStyles Natural Feeling
- Larger size—roomy from top to bottom
 - ◆ Maxx, Trojan Large, Magnum XL, Magnum, Durex Maximum, LifeStyles Large, Avanti, Crown, Trojan Supra

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External (Male) Condoms

- New sizes: dozens of 54 different sizes available
- **MyONE PERFECT FIT Condoms:**
 - ◆ 10 lengths, 9 width
 - Accessed at: <https://www.myonecondoms.com/>

Cecil M, et al. *Contraception*. 2010;82(6):489-90.

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External (Male) Condom Update

- Inconsistent use common¹
- Many new sizes needed and available²
- New materials: polyisoprene
- New incentives: ribbing, scents, vibrating rings
- New barriers: stored in locked cases
- Addition of condoms to COCs could reduce STDs, unintended pregnancies and abortions⁴
- “The one” male condom approved for anal intercourse

1. Nelson AL. *Am J Obstet Gynecol*. 2006;164(6):1710-5.
 2. Cecil M, et al. *Contraception*. 2010;82(6) 489-90.
 3. Pazol K, et al. *Public Health Rep*. 2010;125(2):208-17.

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Female Barriers

- Contraceptive sponge variably available
- Internal (female) condom FC2 (nitrile)
 - ◆ Internal (female) vs. External (male) condom:
 - Less ejaculation, less active coitus, shorter coital duration¹
- CAYA diaphragm
- FemCap online: sized by obstetrical history
- 2-day method
- Standard Days method with CycleBeads

1. Haddad L, et al. *Contraception*. 2012;86(4) 391-6.

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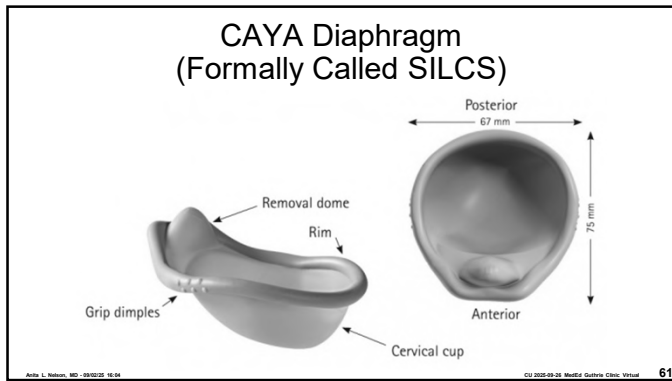
Internal (Female) Condom



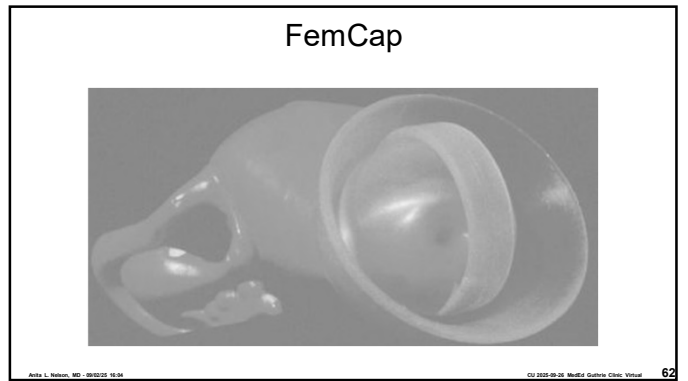
Kramze LF, et al. *Contraception*. 2015;9(3):254-260.

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Resources for Ordering

- Caya diaphragm - <http://buycaya.com/caya-single-size-diaphragms.html>
- Cervical cap - http://www.amazon.com/Instead-Softcups-Feminine-Protection-Count/dp/B000X29GY6/ref=sr_1_1?rps=1&ie=UTF8&qid=1440540424&sr=8-1&keywords=cervical+cap

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Contraceptive Sponge

- Approved by FDA in 1983, withdrawn in 1994, and reapproved in 2005
- Disposable polyurethane foam disk containing 1-gram N-9
- Single use device moistened and placed high in vault to cover cervix
- Mechanisms of action: spermicide (24 hours) plus device absorbs semen and blocks cervix

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Vaginal pH Modulator - Phexxi

- Previous known as ACIDFORM/Amphora
 - ◆ FDA-approved as Instead Intimate Lubricant
- New category of products (VPM)
 - ◆ Maintains acidic vaginal pH
 - ◆ Nonhormonal, woman-controlled, coitally dependent contraceptive method
 - Prefilled applicator
- Can be combined with other methods
- Phase 2 study: Reduced risk of Gonorrhea and Chlamydia
 - ◆ Phase 3 trial less impressive

Thomas MA, et al. *Contraception*. 2020;Epub ahead of print.
Eisenberg DL. *OBG Mgmt Supplement*. 2020;Sept:S1-S4.

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Behavioral Contraceptive Options

- Abstinence
- Masturbation
- Outercourse
- Coitus Interruptus
- Fertility Awareness
- Lactational Amenorrhea
- Other

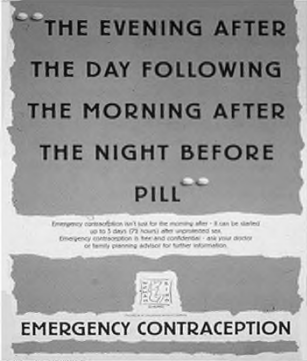
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Fertility Awareness Methods to Identify At-Risk Days

- Historical menstrual cycle
- Standard Days Methods with CycleBeads (App)
- 2-day method
- AVA system
- Natural Cycles and other apps
 - ◆ Now linked to Oura Ring, Apple Watch or special bracelets
- Urinary ovulation kits
 - ◆ Not recommended – warning comes too late!

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- IUDs most effective but not readily available
- LNG-EC (Plan B)
- UPA-EC (ella)
- Yuzpe method (LNG + 100 mg EE pills)

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LNG-EC Update

- Works by ovulation suppression only^{1,2}
- Failure rates strongly impacted by weight
 - ◆ 1.3% normal; 2.5% overweight; 5.8% BMI >30 kg/m²³
- Works best if taken early
 - ◆ 0.5% <12 hours
 - ◆ 4.1% > 60 hours
- Biggest contributor to failure – unprotected coitus following use
- Offer by advance prescription to all except?

1. Novikova N, et al. *Contraception*. 2007;75(2):112-8.
2. Noe G, et al. *Contraception*. 2011;84(5):486-92.
3. Glaiser A, et al. *Contraception*. 2011;84(4):363-7.

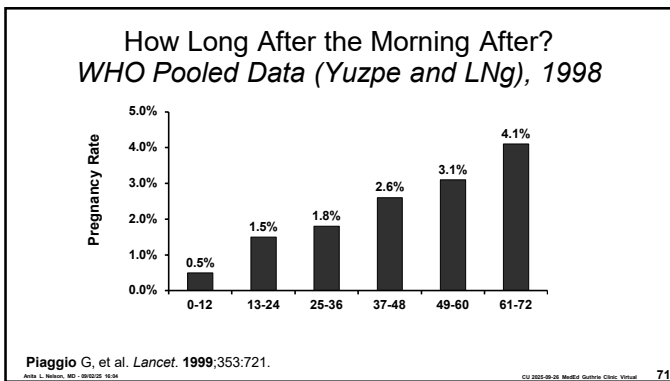
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Ulipristal Acetate (ella) for Emergency Contraception

- 1553 treatments of women 48-120 hours after unprotected intercourse
- 30 mg Ulipristal acetate (UPA) orally
- Pregnancy rate at hours
 - ◆ Overall 2.1%
 - ◆ 72-96 2.1%
 - ◆ 48-72 2.3%
 - ◆ 96-120 1.3%
- Cycle length increased a mean of 2.8 days
- Duration of bleeding did not change
- 5-day rule: Wait to (re)start hormonal contraception for 5 days after coitus (sperm die)

Fine P, et al. *Obstet Gynecol* 2010;115(2 Pt 1):257-63.

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Overweight and Obese Women Have Lower Failure Rates with UPA EC

BMI	Pregnancy Rates	
	LNG-EC	UPA-EC
< 25 kg/m ²	1.3%	1.1%
25 - 29.9 kg/m ²	2.5%	1.1%
≥ 30 kg/m ²	5.8%	2.6%
≥ 35 kg/m ²	7-8%	
Further coitus	7.3%	5.6%

Glaiser A, et al. *Contraception*. 2011;84(4):363-7.

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Copper IUD for EC

- 8400 postcoital copper IUD placements¹
 - ◆ Pregnancy rate 0.1% to 0.7%
- Prospective trial: 1963 CuT380A placements within 120 hours²
 - ◆ No pregnancies; No PID
 - ◆ 94.3% parous women continued at 12 months
 - ◆ 88.2% nulliparous women continued for 1 year
- Chinese trial: 1933 women within 120 hours³
 - ◆ Pregnancy rate: 0.13%

1. Trussell J, et al. *Fertil Control Rev*. 1995;4: 8-11.
 2. Wu S, et al. *BJOG*. 2010;117:1205-10.
 3. Billian X. *Contraception*. 2007;75:S31-4.

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LNG IUD vs Cu-IUD for Emergency Contraception

- 317 LNG-IUD : 321 Cu 380A IUD
- Follow-up at one-month:
 - ◆ 290/317; 91.5% LNG
 - ◆ 300/321; 93.5% Cu
- Pregnancy rate: 1/290 LNG- IUS
 - ◆ 0/321 Copper IUD
- LNG-IUS was non-inferior to copper IUD for emergency contraception. Small study size

Turok DK, et al. *N Engl J Med*. 2021;384(4):335-344.

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