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Contraception: An Update

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CONTINUING MEDICAL EDUCATION
DEPARTMENT OF MEDICINE

HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

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- Clinical focus: General gynecology, complex family planning
- Research focus: complex contraception, reproductive planning, IUD management, pain management with gynecologic procedures

Disclosures

- No financial disclosures
- Language disclosure: use of terms women, female, pregnancy-capable, AFAB (assigned female at birth)

Learning Objectives

Context
Understand diverse preferences for features of contraceptive performance

Options
Describe available contraceptive methods, including recent advances

Contraindications
Utilize national contraceptive guidelines

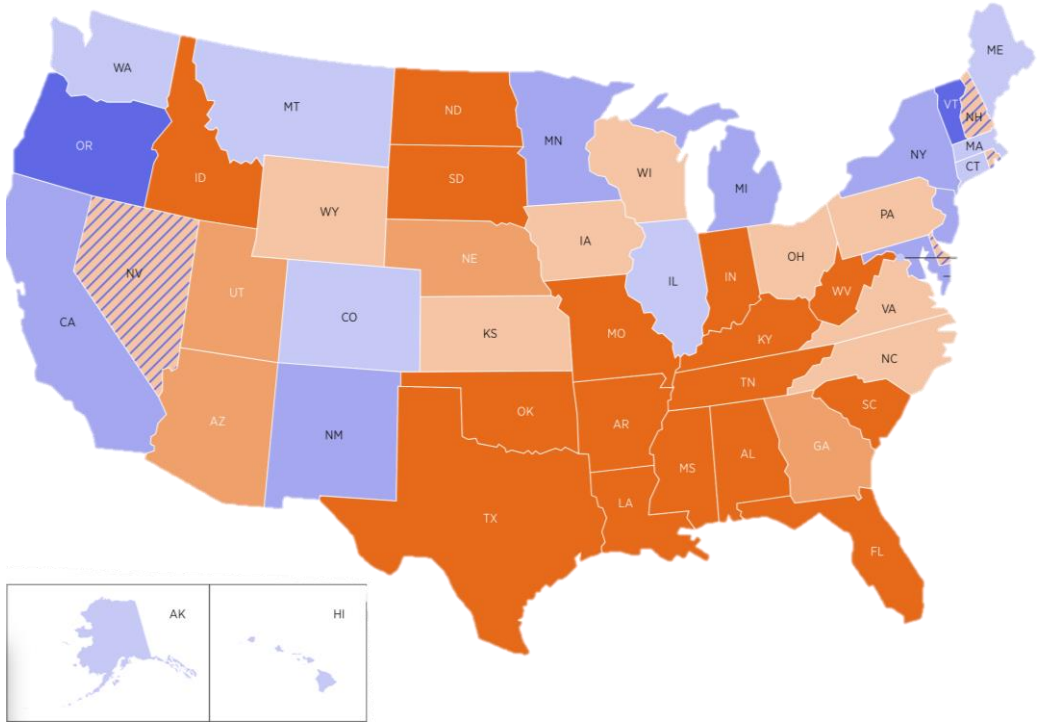
Practice considerations
Identify unique medication interactions and internal medicine circumstances affecting contraception

Why contraception matters

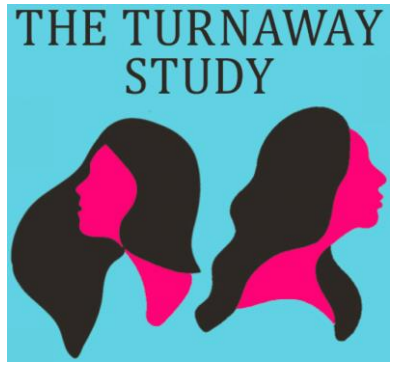
- Contraception provides both contraceptive and non-contraceptive benefit
- Most pregnancy capable people in the US want 2 children and will spend ¾ of their reproductive lives avoiding pregnancy
- The right to bodily autonomy, to have children, to not have children, and to parent children in safe and sustainable communities are the **core values of reproductive justice**

Ross, 2017; Guttmacher, 2019; SisterSong, 2023

Why contraception matters specifically for primary care



- Moment of new medical diagnosis or steward through care of chronic medical problem
- Prescription of teratogenic medications or medications with significant interactions
- New abortion landscape
  - Economic hardship
  - Increased violence exposure
  - Family well-being
  - Pregnancy complications



Guttmacher, 2025; Greene Foster, 2020

Moving away from the term “Unintended Pregnancy”

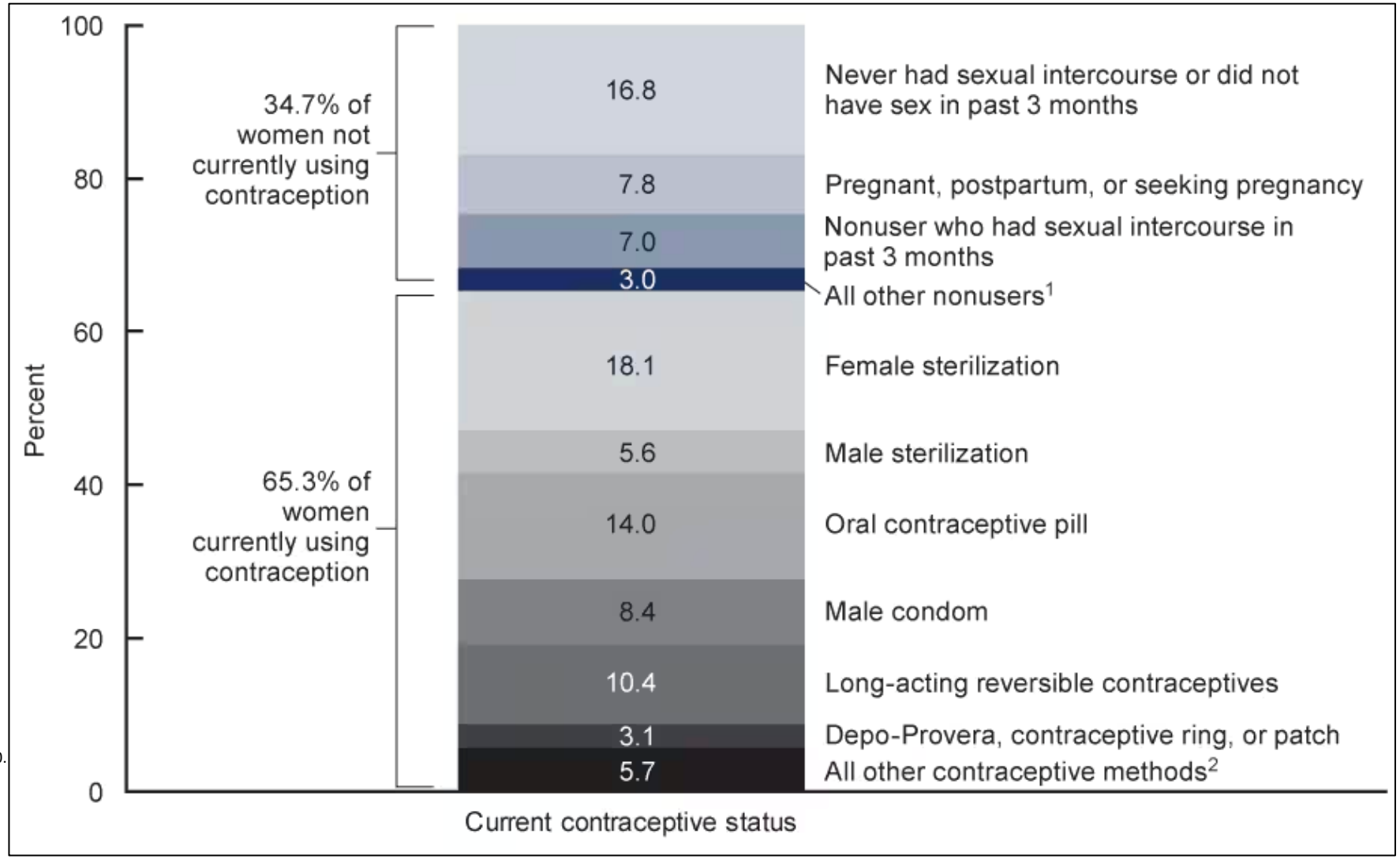
- “Unintended Pregnancy” has been an epidemiologic concept used as a marker of lack of access to contraception/reproductive health care, AND tied to poorer health outcomes of births in pregnancies that are unintended rather than intended

- **FALSE BINARY**
  - **Unintended pregnancies that end in birth and abortion are not the same**
    - “Undesired” and “mistimed” are not the same: births not expected vs births from lack of access to abortion
  - Reinforces abortion as a health system failure
  - Assumes people can freely choose a contraceptive method and pregnancy outcome
  - Ignores nuanced feeling about pregnancy, both before (in contraception choice) and after (choice of abortion vs birth)

- What do we use instead? Think about **Reproductive Autonomy**
  - Contraceptive Preferences: Are people using the contraceptive method of their choice?
  - Measures of abortion access/delay – inability to obtained desired abortion

“Current” contraceptive landscape

Percent distribution of women aged 15-49, by current contraceptive status: United States, 2017-2019



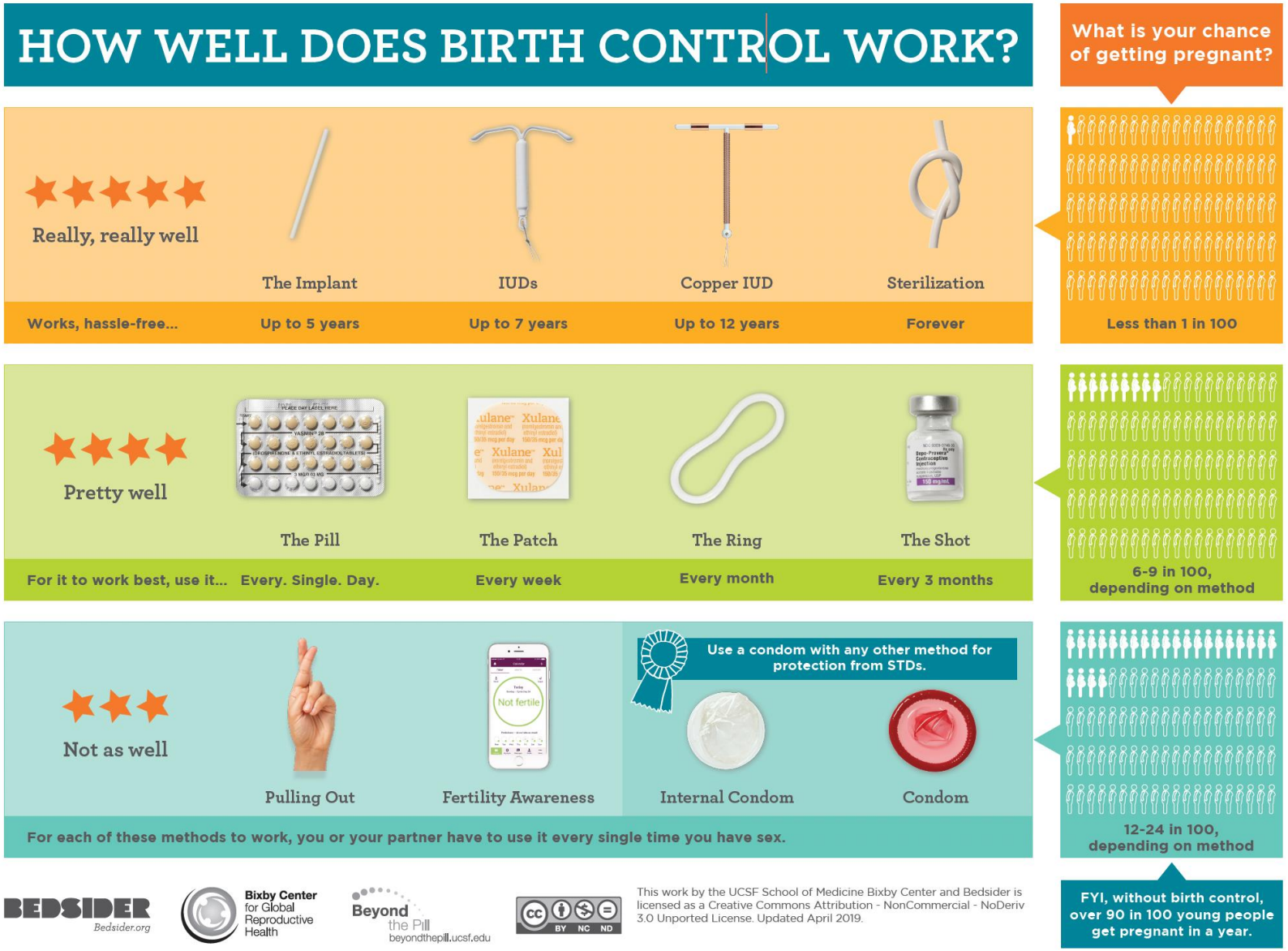
National Center for Health Statistics. 2020.

Dimensions of contraceptive choice

Method	% experiencing unintended preg. in 1st yr Typical Use	 Perfect Use
Female Permanent Contraception	0.5	0.5
Male Permanent Contraception	0.15	0.10
Etonogestrel implant	.05	.05
IUD		
Nonhormonal (copper)	0.8	0.6
Hormonal (levonorgestrel 52mg)	0.2	0.2
Contraceptive injection	6	0.2
Combined and progestin only pill	9	0.3
Combined contraceptive patch	9	0.3
Combined contraceptive ring	9	0.3
Diaphragm	12	6
Condom (male)	18	2
No method	85	85

Hatcher, 2018

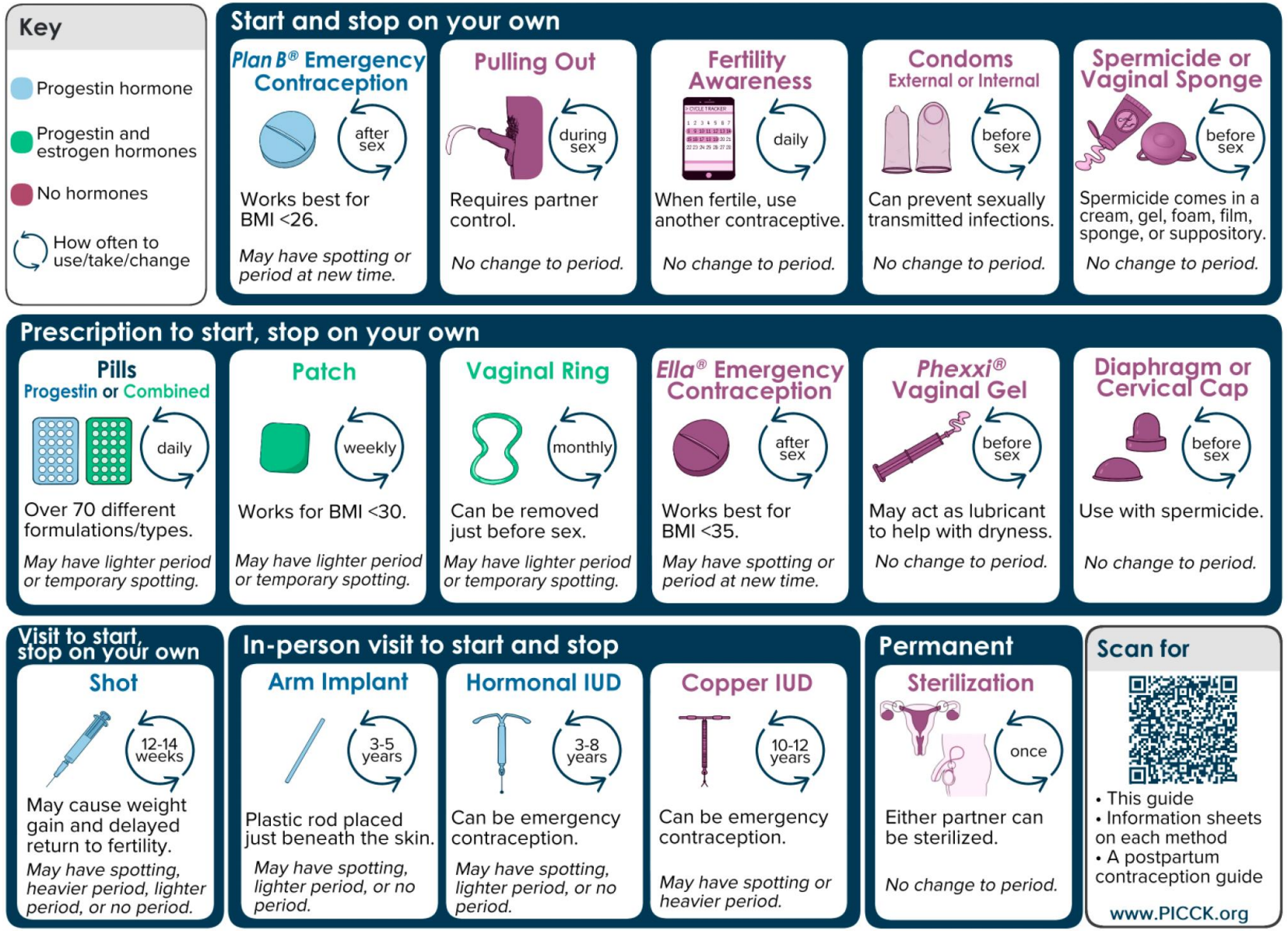
Dimensions of contraceptive choice



University of California, 2019

Dimensions of contraceptive choice

- Effectiveness
- Degree of user control
- Prescription
- Time to effectiveness
- Hormonal/non-hormonal
- Non-contraceptive benefits
- Partner involvement
- Ease and frequency of use

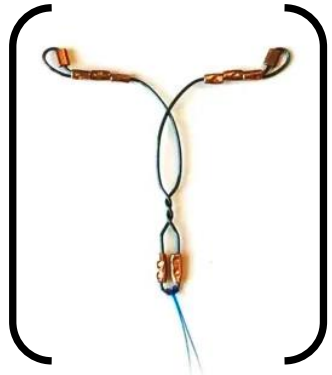


PICCK, 2022

IUDs

Hormonal IUDs (*Mirena, Liletta, Kyleena, Skyla)*

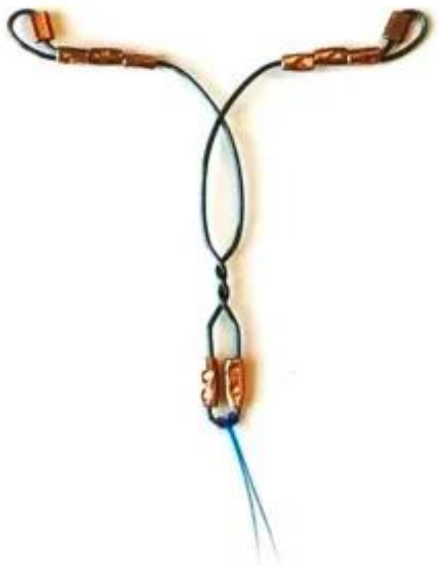
- Foreign body effect, endometrial thinning, cervical mucous thickening
- 52mg, 19.5mg, 13.5mg levonorgestrel
- Differing amenorrhea rates, sizes
- Similar efficacy (0.2% first year)
- 8, 5, 3 years of use (evidence-based)
- 52mg effective EC



Non-hormonal IUD(s)

- Foreign body effect
- Current model T380A *Paragard*
- More reported bleeding, cramping (0-6 months)
- Efficacy 0.8% first year
- 12 years of use (evidence-based)
- Effective EC

IUDs

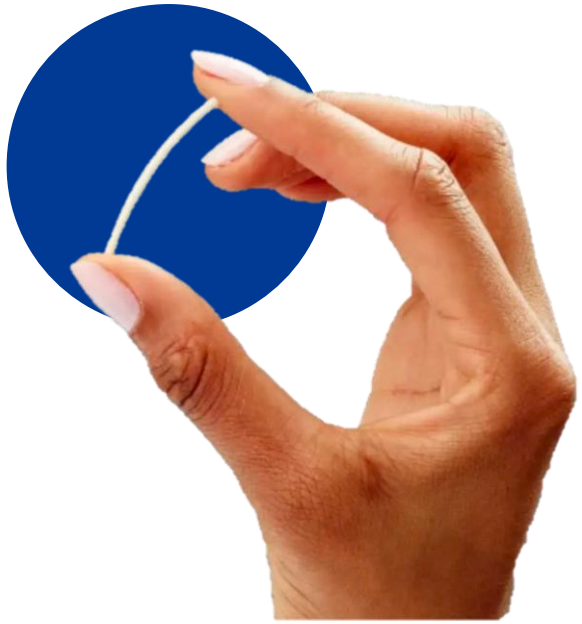


TCu380 Mini *Miudella*

- Approved Feb 2025 – not yet commercially available*
- Same amount of copper, different shape, smaller
- Three years of use
- Pregnancy rates
  - Pearl Index: 1.86 pregnancies/100 women-years
  - Cumulative pregnancy rate through 3 years: 4.8%
    - Higher in parous participants (7.5%!)
- Lower rates of removals for bleeding/cramping than TCu380A (14.5% vs. 27.3%)

Who will this IUD be good for?

Contraceptive Implant
Nexplanon



- Ovulation suppression
- Current (2010) model radio-opaque, different inserter, different insertion location
- Unscheduled bleeding associated with discontinuation
- Efficacy 0.05%
- **Now approved for 5 years of use!**
- 7 days to effectiveness

Pills, patch, ring, injection: new options

<u>One-year vaginal ring (2018) *Annovera*™</u>

- Ovulation suppression
- Segesterone acetate and ethinyl estradiol
- Reusable 12 cycles on 21/7 regimen
- Limited data BMI >29
- No refrigeration
- Monthly ring option remains available as Rx

<u>Higher dose progestin-only pill (2019) *Slynd*</u>

- Ovulation suppression
- 4mg drospirenone (also in 4th generation COC)
- Packaged 24 active/4 placebo pills
- $T_{1/2}$ = 30 hours
- “Mini-pill” (0.35 norethindrone) remains available as Rx

Pills, patch, ring, injection: new options

<u>Levonorgestrel patch (2020) *Twirla*</u>

- Ovulation suppression
- Other patch contains norelgestromin
- Better adhesive, ?less thrombogenic
- Contraindicated BMI >30 because of reduced efficacy (also at BMI >25)

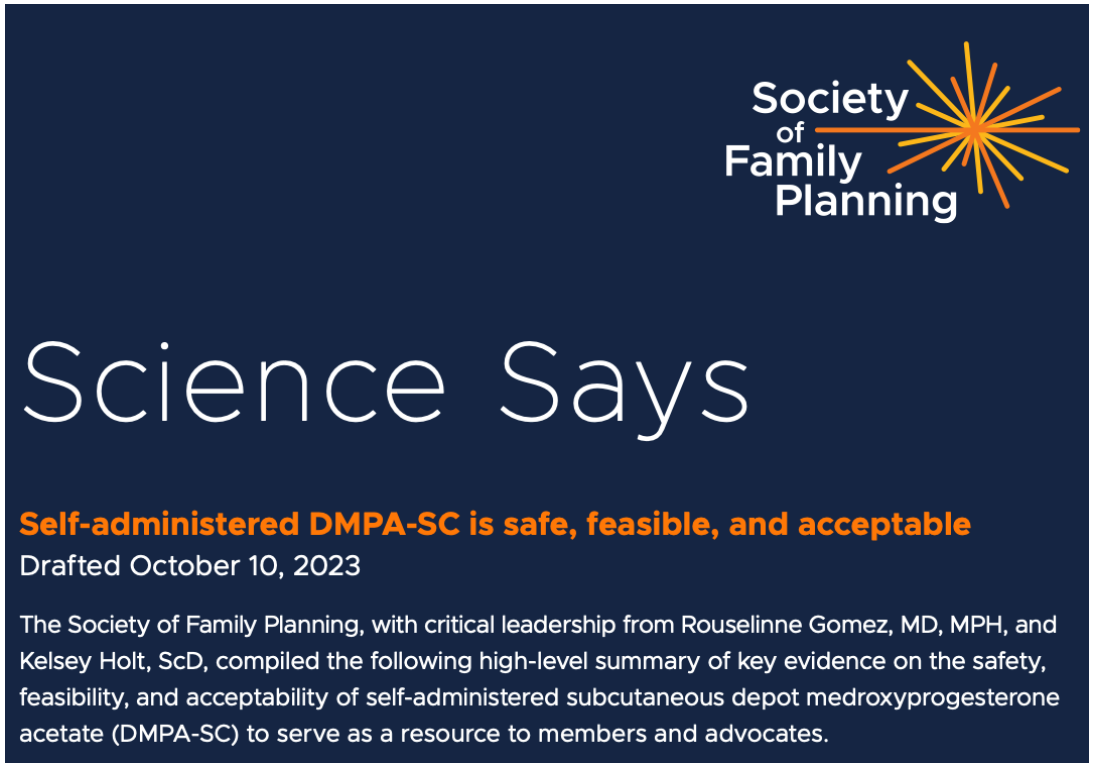
<u>Novel estrogen combined hormonal pill (2021) *Nextellis*</u>

- Ovulation suppression
- Estetrol 14.2mg/Drospirenone 3mg
  - Plant sourced, naturally occurring fetal liver
  - Less estrogenic, ?less thrombogenic

Injection

Contraceptive injection DMPA IM (1992), SC(2004)

- Ovulation suppression
- 3-month, progestin-only injection
- Same efficacy, greater continuation rates



Gomez, 2023

Over-the-counter oral contraception

<u>OTC progestin-only pill (2024) *OPill*</u>

- Local progestin effects, some ovulation suppression
- Better than historical efficacy for POP
- Norgestrel 0.075mg
- Packaged as 28 pills, taken continuously
- Data mixed re: importance of daily timing

White, 2012; Dutton, 2021; Glasier, 2022; Zuniga, 2023; FDA, 2023

Over-the-counter oral contraception

SELF-SCREEN SUCCESS

- Low prevalence contraindications
- High concordance self + HCP screening

EFFECTIVE

- No difference 6 hour-delay or 1 missed pill

WELL-TOLERATED

- >80% likely to use
- 90% plan long-term use

Contraindications to progestin-only oral contraceptive pills among reproductive-aged women

Kari White[a], Joseph E. Potter[b], Kristine Hopkins[b], Leticia Fernández[c], Jon Amastae[d], Daniel Grossman[e,*]

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[b]Population Research Center, University of Texas at Austin, Austin, TX 78712, USA
[c]Department of Family Medicine, University of Pretoria, Pretoria 0084, South Africa
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[e]Ibis Reproductive Health, Oakland, CA 94612, USA

Received 30 November 2011; revised 16 January 2012; accepted 17 January 2012

The effect of deliberate non-adherence to a norgestrel progestin-only pill: A randomized, crossover study☆,☆☆

Anna Glasier[a,*], Alison Edelman[b], Mitchell D. Creinin[c], Vivian Brache[d], Carolyn L. Westhoff[e], Leo Han[b], Melissa J. Chen[c], Agnes Hemon[f]

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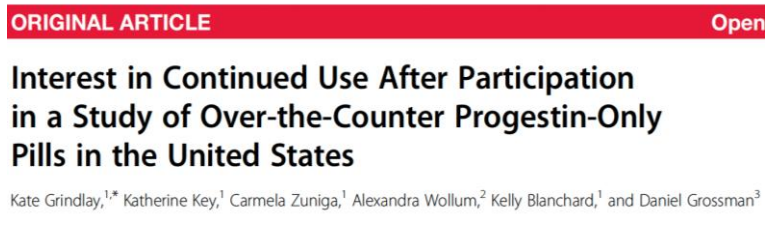


ORIGINAL ARTICLE Open

Interest in Continued Use After Participation in a Study of Over-the-Counter Progestin-Only Pills in the United States

Kate Grindlay,[1,*] Katherine Key,[1] Carmela Zuniga,[1] Alexandra Wollum,[2] Kelly Blanchard,[1] and Daniel Grossman[3]

Over-the-counter oral contraception

- Legitimacy statements
- Simple (9 words) instructions
- Clarity re: EC
- Easy to read supply
- Angles, shapes, colors!

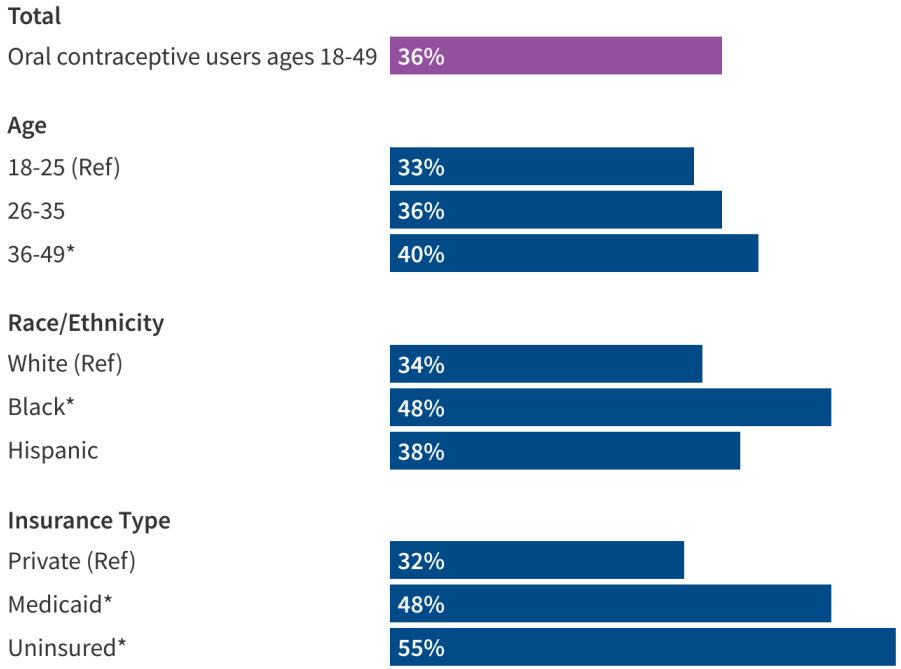
Kania, 2024; Perrigo, 2024

Over-the-counter oral contraception

- Save time by not visiting a clinician
- Save money by not paying for a visit
- Privacy/not telling parents
- Ability to start a pill when needed

More Than One-Third of Oral Contraceptive Users Have Missed Taking Their Birth Control Because They Weren't Able to Get Their Next Supply

Among females ages 18-49 who use oral contraception, share who have ever missed taking their birth control on time because they were not able to get their next supply on time



KFF Women's Health Survey 2022, Diep 2026

On demand methods

Contraceptive gel (2020) *Phexxi*

- Sperm immobilization by pH regulation
- Lactic acid-citric acid-potassium bitartrate
- Single dose, prefilled applicators for each sexual act, placed no >1 hour prior
- Minor vulvovaginal burning, itching
- Efficacy: Estimated Pearl Index **27.5**
- Prescription required

Diaphragm (2014) *Caya*

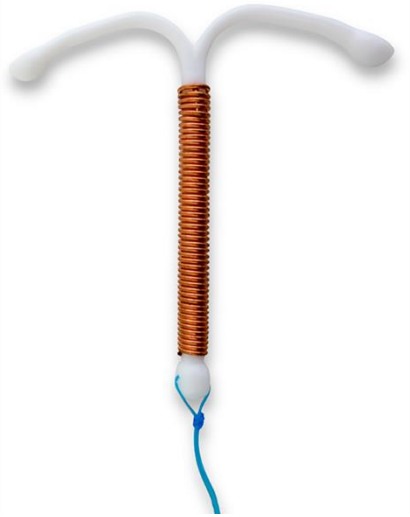
- Sperm barrier
- Single size silicone diaphragm, no fitting necessary
- Use with spermicide
- Place <1 hour before, keep in place 6 hours
- Use for up to 2 years
- Efficacy: 88 %
- Prescription required
- Fitted diaphragms are still available

Emergency contraception

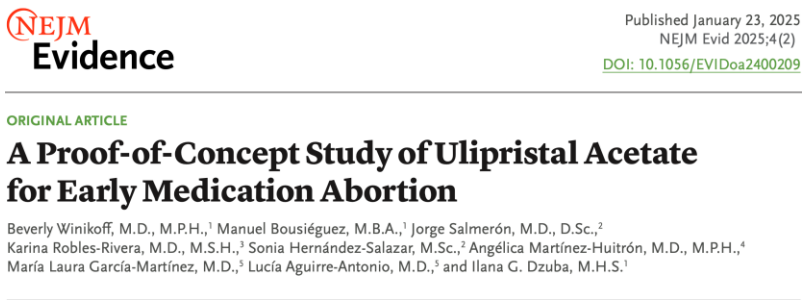
Levonorgestrel 1.5mg
Plan B

Ulipristal Acetate 30mg
ella

52mg Levonorgestrel IUD



Copper IUD



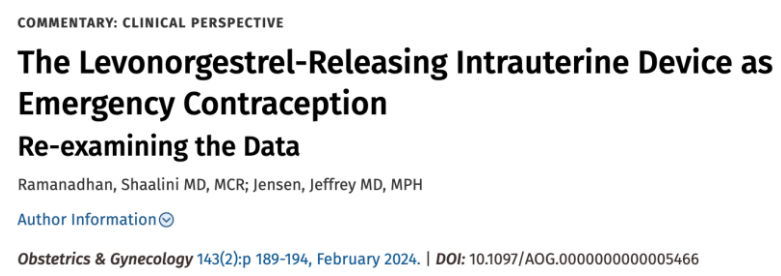
NEJM Evidence

Published January 23, 2025
NEJM Evid 2025;4(2)
DOI: 10.1056/EVIDoa2400209

ORIGINAL ARTICLE

A Proof-of-Concept Study of Ulipristal Acetate for Early Medication Abortion

Beverly Winikoff, M.D., M.P.H.,[1] Manuel Bousiéguez, M.B.A.,[1] Jorge Salmerón, M.D., D.Sc.,[2] Karina Robles-Rivera, M.D., M.S.H.,[3] Sonia Hernández-Salazar, M.Sc.,[2] Angélica Martínez-Huitrón, M.D., M.P.H.,[4] María Laura García-Martínez, M.D.,[5] Lucía Aguirre-Antonio, M.D.,[5] and Ilana G. Dzuba, M.H.S.[1]



COMMENTARY: CLINICAL PERSPECTIVE

The Levonorgestrel-Releasing Intrauterine Device as Emergency Contraception

Re-examining the Data

Ramanadhan, Shaalini MD, MCR; Jensen, Jeffrey MD, MPH

Author Information

Obstetrics & Gynecology 143(2):p 189-194, February 2024. | *DOI:* 10.1097/AOG.0000000000005466

Emergency contraception

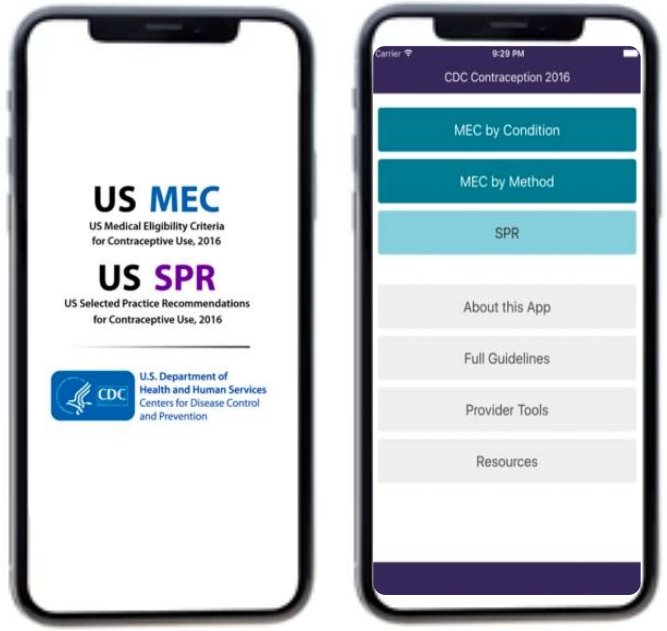
- NO contraindications, exams, labs, pregnancy testing needed for oral medications
- Routine evaluation, few contraindications for IUDs
- Efficacy based on
  - Method selected
  - Timing of intercourse
  - BMI (for oral medications)
  - Planned hormonal contraception use (for ulipristal acetate)

Emergency contraception

Copper IUD	LNG IUD	UPA	PO LNG
0.1%	0.3%	~1.5%	~2%
5 days (or just neg UPT)	5 days (or just neg UPT)	5 days	3 days, off label 5 days
Effective anytime in cycle	Effective any time in cycle	Effective until LH peak	Effective until LH starts rise
Clinical placement	Clinical placement	Rx	OTC
$$ if high deductible or no insurance	$$ if high deductible or no insurance	$50-67 if self-pay	$25-50 if self pay
Provides ongoing contraception	Provides ongoing contraception	Wait 5 days for hormonal methods	Start separate contraception anytime
No impact of BMI	No impact of BMI	BMI 30+ 2.6%	BMI 25-29 2.5% BMI 30+ 5.8%

Contraceptive eligibility

U.S. Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Recommendations and Reports / Vol. 73 / No. 4
August 8, 2024



U.S. Medical Eligibility Criteria for Contraceptive Use, 2024

NOTE: in 2/2025, this content and the application were temporarily removed but available again as of 2/24/2025. The WHO offers an alternative app.

Nguyen, 2024

Contraceptive eligibility grading schema

1	No restriction for the use of the contraceptive method for a woman with that condition
2	Advantages of using the method generally outweigh the theoretical or proven risks
3	Theoretical or proven risks of the method usually outweigh the advantages – not usually recommended unless more appropriate methods are not available or acceptable
4	Unacceptable health risk if the contraceptive method is used by a woman with that condition

Nguyen, 2024

Contraceptive selected practice guidelines

- Initiation
- Method switching/backup contraception
- Recommended examination/tests
- Actions for delayed pill/patch/ring
- Follow-up

NOTE: this resource was temporarily removed in 2/2025. It is available again as of 2/24/2025 for an indeterminate time.

Curtis, 2024

Medication interactions to highlight

- Antiretrovirals
- Anticonvulsants
- Rifampin
- St. John’s Wort
- Perioperative medications

Medications to prompt reproductive planning questions

- Routine
  - Dermatologic: retinoids
  - ID: tetracyclines, fluoroquinolones

- People with chronic conditions
  - Neurologic: valproic acid, phenytoin, carbamazepine
  - Rheumatologic: methotrexate
  - Cardiovascular: ACEI, coumadin, statins

Conditions to prompt reproductive planning questions

- Migraines
- Hypertension
- Malabsorptive bariatric surgery
- IBD
- Personal, family history of VTE
- Lupus / antiphospholipid antibodies

When to (*not*) stop or delay contraception

- Hospital admission
- (Most) major surgery
- Due for a pap/annual exam
- Possible luteal phase pregnancy
- Suspected PID (even IUDs!)

Question 1

27 year old G0 presents with UTI symptoms. She had unprotected intercourse 4 days ago. A urine pregnancy test is negative. What are her emergency contraception options?

A. Levonorgestrel 1.5mg (Plan B) and ulipristal acetate 30mg (Ella)
B. Medroxyprogesterone acetate 150mg/ml (Depo-provera)
C. 52mg Levonorgestrel IUD (Mirena/Liletta)
D. All of the above
E. All but B

Question 1

27 year old G0 presents with UTI symptoms. She had unprotected intercourse 4 days ago. A urine pregnancy test is negative. What are her emergency contraception options?

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C. 52mg Levonorgestrel IUD (Mirena/Liletta)
D. All of the above
E. All but B

Question 2

She chooses ulipristal acetate, but she also wants to start contraception. When can she start a method?

A. Same day start for all methods
B. Delayed start for all methods until negative UPT in 14 days
C. Delayed start for progestin-containing methods

Question 2

She chooses ulipristal acetate, but she also wants to start contraception. When can she start a method?

A. Same day start for all methods
B. Delayed start for all methods until negative UPT in 14 days
C. Delayed start for progestin-containing methods for 5 days

Question 3

She decides to start combined hormonal contraception five days after taking ulipristal acetate. What evaluation is needed prior to initiation?

A. Review of history for estrogen contraindications and blood pressure check
B. Bimanual exam and pap smear
C. Evaluation of antibiotics being used for concurrent UTI
D. A and C

Question 3

She decides to start combined hormonal contraception five days after taking ulipristal acetate. What evaluation is needed prior to initiation?

A. **Review of history for estrogen contraindications and BP check**
   Hypertension, VTE history, migraines with aura, smoking + age >35
~~B. Bimanual exam and pap smear~~
~~C. Evaluation of antibiotics being used for concurrent UTI~~
D. A and C

Key Points for the PCP

- Contraceptive goodness-of-fit involves more than efficacy, although effective contraception plays a more important role than ever in reproductive life planning following *Dobbs*

- New methods and new applications/uses of contraception continue to expand options available

Best Next Steps for the PCP

- Guidelines (MEC, SPR) are available to help clinicians determine who, when, and how contraceptive methods can be used.
  - There are no contraindications to oral emergency contraception and few to IUDs
  - There are select medications that interfere with contraceptive efficacy, namely antiretrovirals and anticonvulsants
  - Some chronic conditions and corresponding teratogenic medications warrant contraceptive consideration
- There are rare circumstances when contraception should be withheld or discontinued, namely failed PID treatment with IUD in situ, diagnosis of contraindicated condition (VTE), and patient desire for discontinuation

*future censorship is anticipated

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