Contraception: A Primary Care Review of Best Practices

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Disclosure

I have no financial interests or relationships to disclose.

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Learning Objectives

- Identify variety of contraceptive options
- Select appropriate contraception based on associated medical conditions
- Demonstrate benefits of LARCs

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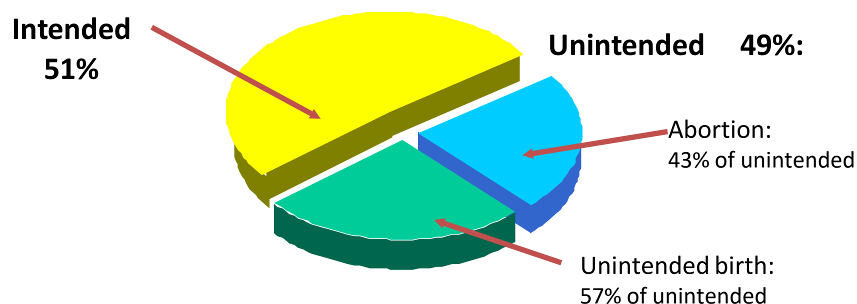
Unintended Pregnancy

3.2 million unintended pregnancies per year in the US



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Unintended Pregnancy

- 54% of women having abortions report using contraception when they became pregnant
  - Most patients were using birth control pills or condoms
    - 13% of women using pills reported correct use
    - 14% of women using condoms reported correct use
- Only 8% of women having abortions reported using no contraception

Finer LB, et al. Contraception 2011;84:478

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Unintended Pregnancy

- Annual medical costs of unintended pregnancy in US
  - $4.6 billion
- Contraception is COST EFFECTIVE!

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Case 1

- 17-year-old female newly sexually active presents to clinic to discuss contraceptive options. She would like to know what you suggest.

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Case 2

- 39-year-old female with history of hypertension presents to clinic after separating from her husband who has a history of vasectomy. She would like to know options for contraception.

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Case 3

- 26-year-old female with history of antiphospholipid syndrome presents to clinic to discuss her contraceptive options. She is in college and doesn't desire pregnancy.

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Options for Contraception

- Permanent sterilization
- Combined estrogen-progestin
- Progestin only
- Non-hormonal

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Pregnancy Rates During 1st Year of Use

Method	Typical Use	Perfect Use
Sterilization	0.5%	0.5%
COC	7%	0.3%
Ring, Patch	7%	0.3%
DMPA	4%	0.3%
ETG-Implant	0.1%	0.1%
LNG-IUD	0.2%	0.2%
Copper IUD	0.8%	0.6%

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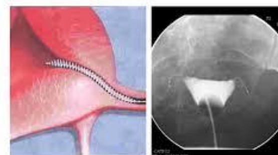
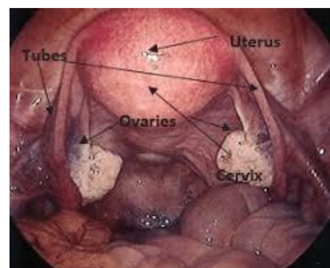
Sterilization

Essure HSG





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Permanent Contraception
Female Sterilization

- Postpartum or at the time of cesarean
  - Mini-laparotomy
    - Parkland, Pomeroy, Irving, Uchida
- Interval
  - Laparoscopic
    - Clips, rings, electrocoagulation, bilateral salpingectomy
  - Hysteroscopic
    - coils

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Permanent Contraception
Female Sterilization

- Regret occurs in 12-13 % of patients overall
  - However, in women under 30 years of age at the time of permanent sterilization, 20% have regret

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Female Sterilization CREST

- Failure rates at 1 year
  - Lowest with
    - Postpartum salpingectomy 0.6/1000
    - Unipolar 0.7/1000
  - Highest with
    - Hulka clips 18.2/1000
- Failure rates at 10 years
  - Lowest with
    - Postpartum salpingectomy, unipolar 7.5/1000
  - Highest with
    - Bipolar 24.8/1000
    - Hulka clips 36.5/1000

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Female Sterilization

- Filshie clip
  - Failure rate at 1 year: 1.7/1000
  - Failure rate at 2 years: 9.7/1000

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Permanent Contraception Female Sterilization

- Hysteroscopic (NO LONGER FDA APPROVED)
  - Transcervical placement of coils into tubal ostia
  - Requires back-up method for at least 3 months
  - Requires HSG to confirm tubal occlusion
    - 3-month occlusion rates 97%
    - 6-month occlusion rates 100%
  - Failure rate of 2.6/1000 at 5 years
  - No longer gave nickel allergy as a contraindication to placement (2011)

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Permanent Contraception Male Sterilization

- Vasectomy
  - 0.15% failure rate at 1 year
  - Not immediately effective
    - Require alternative contraception until azoospermia
    - Confirm with 2 consecutive semen analyses

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Estrogen-Progestin Contraceptives

NuvaRing

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Combined Estrogen-Progestin Contraceptives

- Pills, transdermal patch, vaginal ring
  - Inhibit midcycle surge of gonadotropin secretion
    - Suppress ovulation
  - Alter endometrial receptivity
  - Inhibit ability of sperm to access the upper genital tract

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Combined Estrogen-Progestin Contraceptives

- Nextstellis
  - Drospirenone/estetrol (3mg/14.2mg)
    - Reported to be native estrogen found in mothers during pregnancy
    - Produced from plant source
    - Has tissue selective properties
    - May be helpful in endometrial stabilization

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Combined Estrogen-Progestin Contraceptives

- Monthly contraceptive ring (NuvaRing)
  - Place contraceptive ring 21 days each month, 7 days out
  - EE 15mcg/day, Etonogestrel 120mcg/day
- Yearly contraceptive ring (Annovera)
  - Place contraceptive ring 21 days each month, 7 days out
  - Reuse same ring for 1 yr
  - EE 13 mcg/day with Segesterone acetate 150mcg/day

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Combined Estrogen-Progestin Contraceptives

- Patch (Xulane)
  - Weekly
  - BMI <30 kg/m2
  - 35 mcg EE/120mcg norelgestromin
- New patch (Twirla)
  - Weekly
  - Also, BMI <30 kg/m2
  - 30mcg EE/120mcg levonorgestrel

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Non-Contraceptive Benefits of Estrogen-Progestin Contraceptives

- Reduction in dysmenorrhea, menorrhagia
- Reduction in pelvic pain associated with endometriosis
- Reduction in risk of ectopic pregnancy
- Reduction in symptoms of PMS, PMDD
- Reduction in risk of benign breast disease, new ovarian cysts
- Reduction in risk of ovarian cancer, endometrial cancer, colorectal cancer
- Reduction in moderate acne, hirsutism

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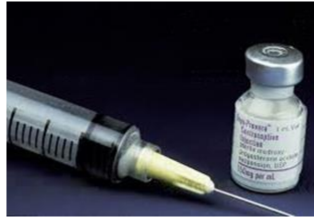
Progestin Contraceptives



Nexplanon

Slynd

Opill

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Progestin Only Contraceptives

- Pill, injectable, implants
  - Thickening of cervical mucous which inhibits sperm penetration
  - Inhibit ovulation

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Progestin Only Contraceptives

- Desirable in the following populations
  - Migraine headache
  - Over 35 years old and smoker/obese
  - History of thromboembolic disease
  - Cardiac disease
  - Cerebrovascular disease
  - Early postpartum state
  - Hypertension with vascular disease over 35 years old
  - Hypertriglyceridemia

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Contraindications to Progestin Use

- Active breast cancer
- Severe decompensated cirrhosis
- Malignant liver tumor
- Past breast cancer
- Systemic lupus erythematosus with antiphospholipid antibodies

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Progestin-Only Contraceptives

- Norethindrone POP (Mini-pill, Micronor, Camilla)
  - Taken daily without pill-free interval
  - Must take at the same time daily
    - Need back up contraception if greater than 3 hr delay
  - Higher failure rate than other contraceptives
    - Lower progestin dosing than COC

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Progestin-Only Contraceptives

- New Formulation POP
  - Slynd (drospirenone 4mg)
    - 24 hr dosing window (if you forget a dose)
    - 24 active pills, 4 placebo pills

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Progestin-Only Contraceptives

- Opill (norgestrel)
  - Daily oral contraceptive, first non-prescription contraceptive medication in US
  - Reported to be 98% effective at preventing pregnancy
  - Website reports "starts working 2 days after first pill"

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Progestin-Only Contraceptives

- Injectables
  - DMPA
    - Available IM or SC
  - Slower return of fertility after discontinuation
    - By 18 months 90% of users ovulate
  - Concern regarding bone loss
  - Weight gain
  - Irregular bleeding

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Progestin-Only Contraceptives

- Implants
  - Etonogestrel (Nexplanon)
    - Single rod
    - 3 yrs of contraception via slow release 68 mg etonogestrel (some studies show effective up to 5 years)
    - Suppression of ovulation
    - Thickening of cervical mucus
    - Alteration of endometrial lining
    - Requires training from the manufacturer

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Progestin-Only Contraceptives

- Implants
  - Etonogestrel
    - Most effective method of reversible contraception
    - Causes for discontinuation
      - Irregular bleeding
      - Acne
      - Weight gain
      - Headache
      - Breast pain

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Progestin-Only Contraceptives

- Implants
  - Levonorgestrel-releasing IUD
    - Inhibit sperm transport and survival
    - Alters endometrial lining
    - Multiple types
      - 52 mg, initial release rate 20mcg/day
        - » 8-year Mirena, 8-year Liletta
      - 19.5 mg, initial release rate 17.5mcg/day
        - » 5 yr Kyleena
      - 13.5mg, initial release rate 14mcg/day
        - » 3-year Skyla

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Progestin-Only Contraceptives

- Implants
  - Levonorgestrel IUD
    - Failure rate at 1 yr 0.2/100 women
    - Side effects
      - Headache
      - Nausea
      - Breast tenderness
      - Cyst formation
        - » Majority of women still ovulate 63%

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Non-hormonal Contraceptives

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Non-hormonal Contraceptives

- Implants
  - TCu380A (ParaGard)
    - Effective 10 years
    - Continuously release copper into uterine cavity
    - Interferes with sperm transport
    - Causes damage to ovum
    - May cause destruction of pre-implanted fertilized embryo

Rivera et al. Am J Obstet Gynecol 1999
Stanford et al. Am J Obstet Gynecol 2002

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Non-Hormonal Contraceptives

- TCu380A
  - Failure rate at 1 yr 0.8/100 women
  - Failure rate at 10 yr 1.9/100 women
  - Most common side effects
    - Abnormal bleeding
    - Dysmenorrhea

Hatcher et al, Contraceptive technology, 2007
Brockmeyer et al, Eur J Contracept Reprod Health Care 2008

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Non-Hormonal Contraceptives

- Barrier methods
  - Condom
  - Diaphragm, cervical cap
  - Sponge
  - Fertility awareness-based methods
  - Withdrawal
  - Lactation
  - Spermicides

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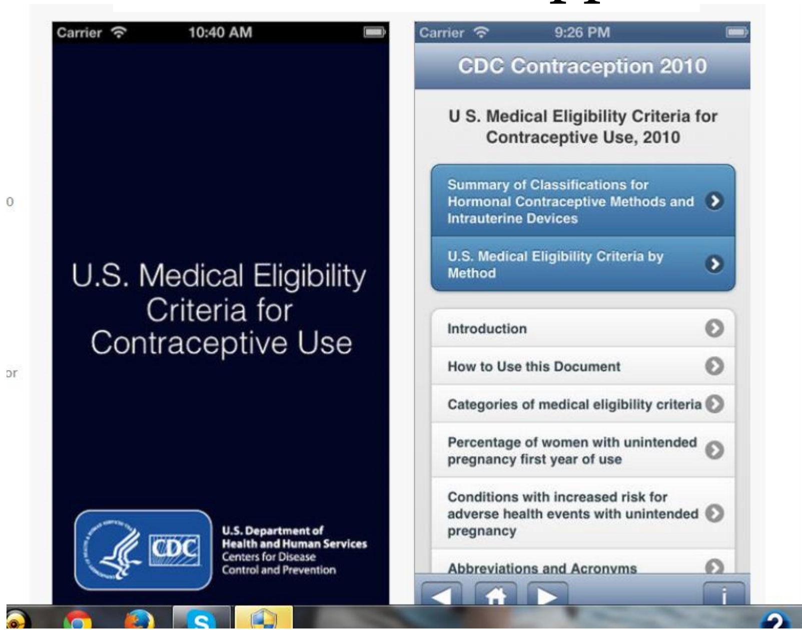
CDC Phone App



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CDC
Medical Eligibility Criteria

Systematic review of evidence – Released 2010

Category	Definition
1	No restriction for use of the method
2	Advantages of using the method generally **outweigh the theoretical or proven risks**
3	**Theoretical or proven risks usually outweigh the advantages** of using the method
4	An unacceptable health risk if the contraceptive method is used

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WHO Medical Eligibility for Contraceptive Use

Condition	COC	P/R	POP	DMPA	Implant	Cu-IUD	LNG-IUD
Breastfeeding <21 days PP	4	4	2	2	2	2	2
Breastfeeding >42 days PP	2	2	1	1	1	1	1
Non-BF <21 days PP	4	4	1	1	1	2	2
Non-BF >42 days PP	1	1	1	1	1	1	1

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WHO Medical Eligibility for Contraceptive Use

Condition	COC	P/R	POP	DMPA	Implant	Cu-IUD	LNG-IUD
Smoking < 35 years	2	2	1	1	1	1	1
Smoking >35 years and <15 cig/day	3	3	1	1	1	1	1
Smoking >35 years and >15 cig/day	4	4	1	1	1	1	1

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WHO Medical Eligibility for Contraceptive Use

Condition	COC	P/R	POP	DMPA	Implant	Cu-IUD	LNG-IUD
Hypertension	3,4	3,4	1,2	2,3	1,2	1	1,2
Multiple RF for CV disease: older, DM, HTN, smoking	3,4	3,4	2	3	2	1	2
DVT/PE history of/acute	4	4	4	2	2	1	2
Stroke	4	4	2	3	2	1	2
Epilepsy	1	1	1	1	1	1	1

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WHO Medical Eligibility for Contraceptive Use

Condition	COC	P/R	POP	DMPA	Implant	Cu-IUD	LNG-IUD
Migraine with aura	4	4	2	2	2	1	2
Diabetes Non-vascular disease	2	2	2	2	2	1	2
Diabetes with nephropathy/ Retinopathy/ Neuropathy	3,4	3,4	2	3	2	1	2
SLE with antiphospho-lipid antibody	4	4	3	3	3	1	3

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LARC
Long-Acting Reversible Contraception (Implants)

Consider as 1st line contraception

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LARC

- Most effective reversible contraceptives
- Rapid return of fertility
- No ongoing effort from user is required
- Methods available in the US
  - Copper T380A IUD (ParaGard)
  - Levonorgestrel IUD (Mirena, Liletta, Skyla, Kyleena)
  - Etonogestrel single rod (Nexplanon)

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LARC

Method	FDA Approval (yrs)	Effectiveness (yrs)
Implant	3	5
Progestin IUD	3,5,8	Up to 8
Copper IUD	10	12

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LARC

- Appropriate for adolescents and nulliparous women
  - Category 1 (Etonogestrel)
  - Category 2 (IUDs)

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LARC

- Back up contraception
  - Not required after insertion of copper IUD
  - Required for levonorgestrel IUD, etonogestrel implant for 7 days after insertion
    - Unless placed within 5 days of initiation of menses
    - Immediately after childbirth
    - After abortion
    - Immediately upon switching from another hormonal contraceptive

Makarainen et al, Fertil Steril, 1998
WHO Selected practice recommendations for contraceptive use, 2008 update

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LARC

- Immediate postpartum insertion IUDs
  - Expulsion rate
    - 24%
    - May differ based on experience of inserter
  - Contraindications
    - Peripartum chorioamnionitis
    - Peripartum endometritis
    - Puerperal sepsis (do not place for 3 months postpartum)

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LARC

- Pregnancy with IUD in place
  - FDA and WHO recommend removal of IUD when possible
    - Complications with IUD in place
      - Increased risk of spontaneous abortion
      - Increased risk of septic abortion

WHO Selected practice recommendations for contraceptive use, 2008

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LARC

- Routine STD screen
  - Routine screening prior to insertion of IUD is not required for low-risk women
  - For high-risk patients may screen and place IUD on same day

Workowski et al. STD treatment guidelines, CDC, 2010

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LARC and Menstrual Cups

- First year expulsion rates 2-10%
  - Expulsion rates decrease after the first year
  - Some data to show (on internet-based surveys) that there is a 3-fold increase in expulsion rates in menstrual cup users
  - Important to counsel patients on this possibility
    - Consider to encourage them to perform more frequent string checks
    - In progesterone containing IUDs may be less of an issue as many women have decreased bleeding or amenorrhea
  - More data/research is needed

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Emergency Contraception

- Progestin only
- Combination estrogen and progestin
- Antiprogestin (progestin receptor modulator)
- Copper IUD

ACOG Practice Bulletin 69

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Emergency Contraception

- Progestin, Combination estrogen and progestin, and antiprogestin
  - Mechanism of action
    - Inhibit or delay ovulation
  - Effective only before a pregnancy has been established
  - Must be taken within 5 days of intercourse (works best if taken within 3 days)

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Emergency Contraception

- Progestin, Combination estrogen and progestin, and antiprogestin
  - Side effects
    - Nausea (less with progestin only)
    - Irregular bleeding
    - Breast tenderness
    - Abdominal pain
    - Headache
    - Fatigue

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Emergency Contraception

- Progestin only or antiprogestin should be preferentially used as they are more effective than estrogen-progestin combination
- Regimen
  - 1.5 mg levonorgestrel single/two dose protocol
  - 100mcg EE + 0.5mg levonorgestrel in 2 doses 12 hours apart (use antiemetic)
  - Ulipristal 30mg
    - More effective than levonorgestrel (but requires prescription)

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Emergency Contraception

- Copper IUD
  - Use up to 5 days after intercourse
  - Advantage in that can then be used for long-term contraception

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Case 1

- 17-year-old female newly sexually active presents to clinic to discuss contraceptive options. She would like to know what you suggest.

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Case 2

- 39-year-old female with history of hypertension presents to clinic after separating from her husband who has a history of vasectomy. She would like to know options for contraception.

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Case 3

- 26-year-old female with history of antiphospholipid syndrome presents to clinic to discuss her contraceptive options. She is in college and doesn't desire pregnancy.

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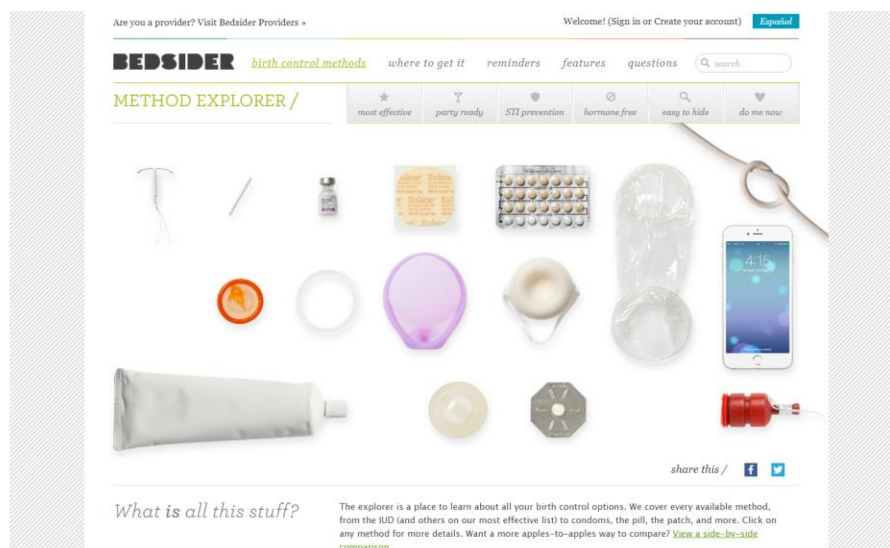

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Lots of Choices

Just pick one!

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