Contraception: Common Problems in Office Practice

Jane S. Sillman, MD
Brigham and Women’s Hospital
Disclosures

I have no conflicts of interest.
Contraception: Common Problems

1. Who needs contraception?
2. What is the best method for your patient?
3. Updates on the best methods
4. Emergency contraception
Who needs contraception?

• Everyone who does not want pregnancy
• Evidence:
  – Only 10% of women of childbearing age are seeking to become pregnant in next year
  – Other 90%: one-third not using any contraception
The One Key Question Campaign

- Endorsed by American Public Health Association, ACOG
- **Ask**: "Would you like to become pregnant in the next year?"
  - "Yes": offer counseling
  - "No": contraception discussion
- **Results**: increase in preconception care and in contraception

thenationalcampaign.org
What is the “best” contraceptive method for your patient?

Best answer is:
1. Medically appropriate
2. Used every time
3. Effective
4. Patient is happy with it
5. All of the above
<table>
<thead>
<tr>
<th>Contraceptive Method</th>
<th>% Women with Unintended Pregnancy in 1st Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly effective</td>
<td>Typical use</td>
</tr>
<tr>
<td>Sterilization</td>
<td>0.5</td>
</tr>
<tr>
<td>Implant</td>
<td>0.05</td>
</tr>
<tr>
<td>IUD</td>
<td>0.2-0.8</td>
</tr>
<tr>
<td>Moderately effective</td>
<td></td>
</tr>
<tr>
<td>DMPA</td>
<td>6.0</td>
</tr>
<tr>
<td>Pills: COCs, POPs</td>
<td>9.0</td>
</tr>
<tr>
<td>Ring</td>
<td>9.0</td>
</tr>
<tr>
<td>Patch</td>
<td>9.0</td>
</tr>
<tr>
<td>Contraceptive Method</td>
<td>% Women with Unintended Pregnancy in 1st Yr</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td><strong>Less effective</strong></td>
<td><strong>Typical use</strong></td>
</tr>
<tr>
<td>Diaphragm</td>
<td>12</td>
</tr>
<tr>
<td>Male condom</td>
<td>18</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>22</td>
</tr>
<tr>
<td>Natural family planning: calendar, temp., mucus</td>
<td>24</td>
</tr>
<tr>
<td>Spermicides</td>
<td>28</td>
</tr>
<tr>
<td><strong>No method</strong></td>
<td>85</td>
</tr>
</tbody>
</table>
How to start contraception

- NEW: Use the **Quick Start** for all methods and everyone
  - Start on the day the patient sees you
- Recommended for pills, patch, ring, injections, implants, IUDs
- Need to be reasonably certain that patient is not pregnant

Hatcher RA et al. Managing Contraception 2017-2018
How to be reasonably certain that a woman is not pregnant

1. No intercourse since last menses
2. Using reliable method consistently
3. ≤ 7 days after start of menses
4. Within 4 weeks postpartum
5. ≤ 7 days post abortion or miscarriage
6. Fully/nearly fully breastfeeding, no menses and ≤ < 3 months postpartum
7. Negative urine pregnancy test
Sample protocol

1. Do urine pregnancy test
2. Offer emergency contraception if unprotected intercourse in preceding 5 days
3. Start method of choice
4. Use back up contraception for 7 days
5. Repeat urine pregnancy test in 2-4 weeks

Updates on the best methods
Case 1: Alice

- Alice is a 20 yo single woman in a monogamous relationship who wants to avoid pregnancy. She describes herself as “not very well organized.”
- What contraceptive might be a good choice?
  1. An IUD
  2. The implant
  3. A birth control pill
  4. Either 1. or 2.
Long-acting reversible contraception (LARC): IUD and implant
American Academy of Pediatrics Policy Statement

- Long-acting reversible contraceptive options – implants and IUDs – should be considered 1st line contraceptive choices for adolescents
  - advantages: efficacy, safety, ease of use
Accessing IUDs or implants remains a problem

• Multiple studies in 2014:
  – Many women, especially those served by federally qualified health centers, still face challenges in obtaining IUDs, implants
  – **Barriers:** staff training, cost of supplies, poor reimbursement, costs to patients

Contraception 2014 Feb;89:85 and 91
Removing the barriers to LARC leads to increased use, decreased pregnancy

• **CHOICE project**: 3 yr prospective study of 1404 girls ages 15-19
  • Education and free, available contraception
  • 72% chose LARC method, 28% other
  • Teen pregnancy rates fell to 3%, compared to national average of 16%

IUDs
Intrauterine devices (IUDs): advantages

1. Safe for all ages
   • Slightly increased risk of PID within 1st 20 days (1/1000)
   • NO increased risk of tubal infertility
2. Effective for all ages
3. Long lasting
4. Reversible: easily removed
5. Highest level of user satisfaction

Obstet Gynecol 2014;123:585
Mechanisms of action

- **Foreign body**: causes sterile inflammatory reaction
- **Local changes** caused by the released medication: copper or levonorgestrel (LNG)
Contraindication to IUD insertion: active pelvic infection

- Active infection
  - Foreign body may impede resolution of infection
  - Wait ≥ 3 months post-treatment
- If asymptomatic, unknown STD status
  - Test for gc/chlamydia; can insert IUD
  - Positive test: treat, don’t remove IUD
  - Retest 3 weeks after end of treatment
Copper IUD (ParaGard)

- Copper enhances the sterile inflammation in the endometrium: toxic to sperm and egg, impairs implantation
- Increases menstrual blood loss
- May increase dysmenorrhea
Copper IUD (ParaGard): duration of action

- Initially approved for 10 years
- Now:
  - Women between 25-34: 12 years
  - Women ≥ 35 years old at time of placement: can leave IUD in place till menopause

Contraception 2014;89:495
Levonorgestrel IUD: mechanisms and models

- Mechanisms:
  - Thickens cervical mucus
  - Causes endometrial atrophy with decreased blood loss

- Four models available: each contain a reservoir of levonorgestrel (LNG) and release small amounts of LNG daily

Contraception 2011;83:48
52 mg LNG IUD (Mirena)

- **Initial release rate** of LNG 20 mcg/day, gradual decrease to 10 mcg/day by 5 years
- Creates high endometrial concentration of LNG
- 20% incidence of amenorrhea by 1 year
52 mg levonorgestrel IUD (Mirena): new data on duration

- FDA approval for 5 years
- Increasing evidence: effective for 7 yrs
- Concern: younger LNG-IUD users have higher risk of pregnancy
- Current recommendation
  - Patient aged < 35: 6 years of use
  - Patient aged ≥ 35: 7 years of use

Am J Obstet Gynecol June 2017; 216 (6): 586.e1
New 52 mg LNG IUD created to cost less (Liletta)

- Created by partnership of Medicines360 (nonprofit women’s health pharmaceutical company) and Actavis (global pharmaceutical company)
- Initial release of LNG 18.6 mcg/day, decrease to 13 mcg/day after 3 years
- Duration: FDA approved for 3 years
Liletta Patient Savings Program

• For commercially-insured patient with co-pay
• Eligible patient may pay no more than $75 for Liletta up to maximum savings limit of $500
• Patients with Medicare, Medicaid not eligible
19.5 mg LNG IUD (Kyleena)

- **Initial release** of 17.5 mcg/day, decrease to 7.4 mcg/day at 5 years
- **Approved** for 5 years of use
- **Smaller**: possible advantage in nulliparous women but no data

Drugs Ther Perspect 2017;33:202
13.5 mg LNG IUD (Skyla)

- **Initial release** of 14 mcg/day, decreasing to 5 mcg/day after 3 years
- By 1 year, 6% of users have amenorrhea
- **Approved** for 3 years of use
- **Same size as Kyleena:** possible advantage in nulliparous women

Medical Letter 2013;55:21
Etonogestrel implant (Nexplanon)
Etonogestrel implant (Nexplanon)

- Radio-opaque progestin implant 4 cm long, 2 mm diameter inserted in medial upper arm
- Contains 68 mg of etonogestrel, active metabolite of desogestrel
- **Initial release:** 65 mcg/day, decreasing to 25 mcg/day by end of 3rd year
Etonogestrel implant: mechanisms

- Inhibits fertilization by interfering with sperm migration
  - Thickens cervical mucus
  - Decreases tubal motility
- Inhibits ovulation
- Causes endometrial atrophy
Etonogestrel implant: new evidence on duration

- FDA approval for 3 years
- **Evidence:**
  - WHO trial: 204 women with etonogestrel implant use for 5 years: 100% efficacy
  - effective for 5 years in women of any age

Hum Reprod 2016;31(11):2491
Am J Obstet Gynecol 2017 June;216:586.e1
Etonogestrel implant: pros and cons

• Pros:
  – Long-lasting
  – High continuation rate
  – Rapid return to fertility: within 3-6 weeks

• Cons:
  – Requires insertion and removal
  – Irregular bleeding
  – Systemic progestin levels: may cause progestin-related side effects: emotional lability, weight gain, acne, depression
Advantages of IUD over implant

- Less irregular bleeding
- Longer duration of action
- Less progestin-related side effects.
  - If concern about progestin-related side effects, copper IUD is best choice
- More private: implant is palpable, may be visible
Case #2: Betty

• Betty is a sexually active 18 yo woman with sickle cell disease and a seizure disorder. She does not want an IUD.

• Best method for her is:
  1. OCP
  2. Depot medroxyprogesterone acetate (DMPA)
  3. Etonogestrel implant
DMPA: benefits for women with medical problems

- **Sickle cell**: may reduce acute sickle cell crises
- **Seizure disorder**:  
  - may decrease seizures  
  - anticonvulsants don’t decrease its effectiveness

Contraception 2003;68:75
DMPA: other advantages

• High efficacy
• Teens less likely to become pregnant than teens on OCP or patch
• Decreased blood loss: amenorrhea in 50% after 1 yr
• Decreased dysmenorrhea (off-label indication)

J Ped Adolesc Gyn 2007;20:61
DMPA: Disadvantages

- Irregular bleeding
- Weight gain
- Delayed return of fertility
- Mood changes
- Decrease in bone density BUT complete recovery after cessation and no increased risk of fractures

ACOG and WHO: advantages of DMPA outweigh risks

• Choose patients appropriately
• Advise adequate calcium, vitamin D and daily exercise
• Don’t check bone density
• Can continue DMPA for decades
DMPA: dose

- **Standard**: 150 mg DMPA IM every 3 months
- **New low dose**: 104 mg SC every 3 months, available in prefilled syringes
  - Potential for self-administration: off-label
  - Compared to 150 mg dose: lower peak levels, less weight gain, more expensive
Case #3: Corinne

- Corinne is a sexually active 30 yo lawyer with PCOS and anovulatory bleeding. Her mother died from endometrial cancer.

- Best contraceptive choice?
  1. Copper IUD
  2. Combined oral contraceptive pill (COC): estrogen and progestin
Combined oral contraceptive (COC): advantages for women with PCOS and anovulatory bleeding

• Can prevent endometrial hyperplasia and endometrial cancer by providing progestin and regulating menses
• Reduces serum androgen concentrations
Combined oral contraceptives: durable cancer protection

- UK Royal College of General Practitioners’ Oral Contraceptive Study
  - longest study of health effects of COCs
  - participants:
    - mean age 70
    - 4661 ever users with at least 1 cancer and 2341 never users with at least 1 cancer
  - mean duration of COC use: 3.7 years
  - median f/u: 41 years

Am J Obstet Gynecol 2017;216:580.e1
Combined oral contraceptives: durable cancer protection

- Ever users compared to never users
- Risks reduced for:
  - endometrial cancer: incidence rate ratio (IRR) 0.66
  - ovarian cancer: IRR 0.67
  - colorectal cancer: IRR 0.81

Combined oral contraceptives and risk of venous thromboembolism (VTE)

- **Background:** COCs are associated with increased risk for VTE but controversy persists about relative risks of specific progestins
- **Method:** Case-control studies using 2 large UK primary care databases: women aged 15-49 with 1st dx of VTE in 2001-13, each matched with up to 5 controls

BMJ 2015;350:h2135
COCs and VTE risk: results

<table>
<thead>
<tr>
<th>COC</th>
<th>Risk of VTE: Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any COC pill</td>
<td>2.97</td>
</tr>
<tr>
<td>Desogestrel</td>
<td>4.28</td>
</tr>
<tr>
<td>Drospirenone</td>
<td>4.12</td>
</tr>
<tr>
<td>Norethindrone</td>
<td>2.56</td>
</tr>
<tr>
<td>Levonorgestrel</td>
<td>2.38</td>
</tr>
</tbody>
</table>

BMJ 2015;350:h2135
Number of extra cases of VTE per year per 10,000 treated women

<table>
<thead>
<tr>
<th>Progestin</th>
<th># Extra cases per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levonorgestrel</td>
<td>6</td>
</tr>
<tr>
<td>Norethindrone</td>
<td>7</td>
</tr>
<tr>
<td>Desogestrel</td>
<td>14</td>
</tr>
</tbody>
</table>

BMJ 2015;350:h2135
COCs and risk of VTE: conclusions

• 1st study with sufficient power to provide reliable findings for different formulations of COCs

• **Recommendation**: Prescribe COCs with progestins associated with lowest risk for VTE
Choice of oral contraceptive

• For the woman with PCOS:
  – Pill with 20 mcg of ethinyl estradiol (EE) and norethindrone, progestin with low DVT risk and low androgenicity (Loestrin)

• For women without PCOS:
  – Pill with 20 mcg EE and levonorgestrel, progestin with low DVT risk (Levlite)

• Generics are fine
Continuous active COCs

- Take active pill every day; don’t take placebo pills
- Monophasic pills recommended
- May have increased spotting, which decreases over time
- Eliminates menses
Continuous COC Use: Indications

- PCOS
- Menstrual migraines
- Dysmenorrhea
- Endometriosis
- Patient convenience

Obstet Gynecol 2012;119:1143
Continuous COC use: fertility and safety

• Year-long continuous use:
  – Menses or pregnancy in 99% users within 90 days of stopping pill

• Progestin effect predominates:
  – Endometrial atrophy, not hyperplasia

Fertility and Sterility 2008;89:1059
COC use in peri-menopausal woman

- **Advantages:** controls cycle, treats hot flashes, provides contraception

- **Options**
  - OCP with 20 mcg EE
  - NEW OCP with 10 mcg EE (Lo Loestrin Fe)

- Avoid in obese women: risk of DVT increases with age and BMI

- Stop by ~ age 51
Transdermal contraceptive patch

• Brand name is off the market; generic is available (Xulane)
• Transdermal: 20 mcg EE + 150 mcg norelgestromin (active metabolite of norgestimate)
• Once-a-week x 3, on same day of week
• Rotate sites
The patch: pros and cons

- **Pros**
  - compliance
  - excellent for continuous use

- **Cons**
  - high serum estrogen levels: delivers about 60% more estrogen than a 35 mcg EE pill
  - higher DVT risk than OCP
Vaginal ring (NuvaRing)

- Flexible, soft ring
- Releases 15 mcg EE and 120 mcg etonogestrel qd
- Use for 3 wks, remove for 1 wk
Vaginal ring: pros and cons

- **Pros** - easy to use
  - good for compliance
  - good for continuous use

- **Cons** - DVT risk similar to COC
Hormonal contraception: absolute risks of DVT

<table>
<thead>
<tr>
<th>Method</th>
<th>Absolute risk of DVT/100,000 women per yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>No COC</td>
<td>10</td>
</tr>
<tr>
<td>COC pill w LNG</td>
<td>50</td>
</tr>
<tr>
<td>COC pill w DG or drospirenone</td>
<td>100</td>
</tr>
<tr>
<td>Patch</td>
<td>97</td>
</tr>
<tr>
<td>Ring</td>
<td>78</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>200</td>
</tr>
</tbody>
</table>

Hormonal contraception: no increase in breast cancer risk

• More than 50 studies on COCs: no effect on risk of developing breast cancer
• WHO: ALL forms of hormonal contraception are category 1 (no restriction) for woman with FH breast cancer
• COCs may be beneficial to patient with BRCA as reduce risk of ovarian cancer

CDC contraindications to estrogen-containing contraception

- Smoker older than 35
- Uncontrolled hypertension: ≥ 160/100
- Hx of DVT or PE
- Known thrombogenic mutations
- Hx of CAD or stroke
- Migraine with aura
- NEW: Migraine over age 35
- Personal hx of breast cancer
Case #4: Susan

- Susan is a 31 yo woman with migraines with aura. She wants contraception for now but hopes to become pregnant within next 2 years.
- Best choice for her:
  1. COC pill
  2. DMPA
  3. Progestin-only pill
Progestin-only pills
Progestin-only contraception

- WHO case-control study 1998: no increase in DVT, stroke, MI with progestin-only pills
- Safe in women with contraindications to estrogen
Progestin-only pills

• Have lower progestin doses than COC pills
  – each pill contains 0.35 mg norethindrone
• Taken daily with no hormone-free days
• Must take pill at same time each day
Progestin-only pill: mechanisms

1. Thickens cervical mucus
   - Happens 2-4 hours after pill is taken, lasts about 22 hours
   - If woman takes pill at 10 pm, has sex an hour before or after, pill not likely to be effective
   - Mid-day is best time to take pill if going to have sex at night or first thing in morning

Hatcher RA et al. Managing Contraception 2017-2018
Progestin-only pill: More mechanisms

2. Causes atrophy of endometrium
   - Leads to decreased menstrual blood loss, amenorrhea in 10% of women

3. Suppresses ovulation
   - In only about 60% of women

Hatcher RA et al. Managing Contraception 2017-2018
Case #5: Dorothy

- Dorothy is a 35 yo woman who had unprotected sex last night and wants advice about emergency contraception. Her BMI is 28.
- Best choice is:
  1. Ulipristal
  2. Plan B
  3. Copper IUD
Emergency contraception
New and best: Ulipristal ("Ella")

- Progestin receptor modulator: suppresses or delays ovulation
- One 30 mg pill: take no later than 5 days after intercourse
- More effective than levonorgestrel (Plan B)
- Very safe

Ann Pharmacother 2011;45:780. Contraception 2014 May;89:431
Levonorgestrel: Plan B

- **One dose:** levonorgestrel 1.5 mg
- **Mechanism:** inhibits ovulation
- **Take ASAP but can be used up to 5 days after intercourse**
- **Available OTC**
  - to people $\geq$ age 17
  - to people of any age: 9 states including MA, VT, NH; 34 countries
Meta-analysis: ulipristal better than levonorgestrel

3242 women: ulipristal or levonorgestrel within 72 hours of intercourse

Pregnancies

<table>
<thead>
<tr>
<th></th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulipristal</td>
<td>22</td>
<td>1.4%</td>
</tr>
<tr>
<td>Levonorgestrel</td>
<td>35</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

OR 0.58, CI 0.33-0.99, P=0.046

Lancet 2010;375:555
BMI affects efficacy of ulipristal (UPA) and levonorgestrel (LNG)

<table>
<thead>
<tr>
<th>BMI</th>
<th>Pregnancy, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UPA</td>
</tr>
<tr>
<td>Normal</td>
<td>1.1</td>
</tr>
<tr>
<td>Overweight</td>
<td>1.1</td>
</tr>
<tr>
<td>Obese</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Overweight: ulipristal or IUD  
Obese: IUD best, then ulipristal  

Contraception 2011;84:363
Advance provision

• Recommend that patients have **home supply** of emergency contraceptives in addition to regular contraceptive method
  – available when/if needed

• Give prescription at annual exam
Copper IUD

- Insert up to 5 days after intercourse
- **Mechanism**: inflammation
  - toxic to sperm and egg
  - interferes with implantation
Emergency contraception: Efficacy

If 1000 women have intercourse…

<table>
<thead>
<tr>
<th>Method</th>
<th># pregnant</th>
<th>% reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>No rx</td>
<td>80</td>
<td>-</td>
</tr>
<tr>
<td>COCs</td>
<td>20</td>
<td>75</td>
</tr>
<tr>
<td>Levonorg</td>
<td>10</td>
<td>88</td>
</tr>
<tr>
<td>Ulipristal</td>
<td>5</td>
<td>94</td>
</tr>
<tr>
<td>IUD</td>
<td>1</td>
<td>99</td>
</tr>
</tbody>
</table>
Take home points

1. Long-acting reversible contraceptives (LARC) are often the best choice
2. DMPA is excellent choice for teens who don’t want a LARC
3. Combined oral contraceptive pills: pick a progestin with low risk for DVT
4. Discuss emergency contraception and give your patient a Rx