Contraception

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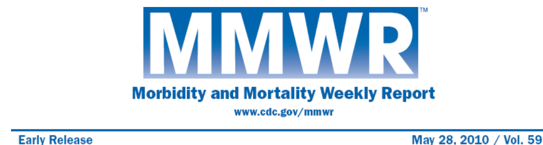
Objectives

To review:

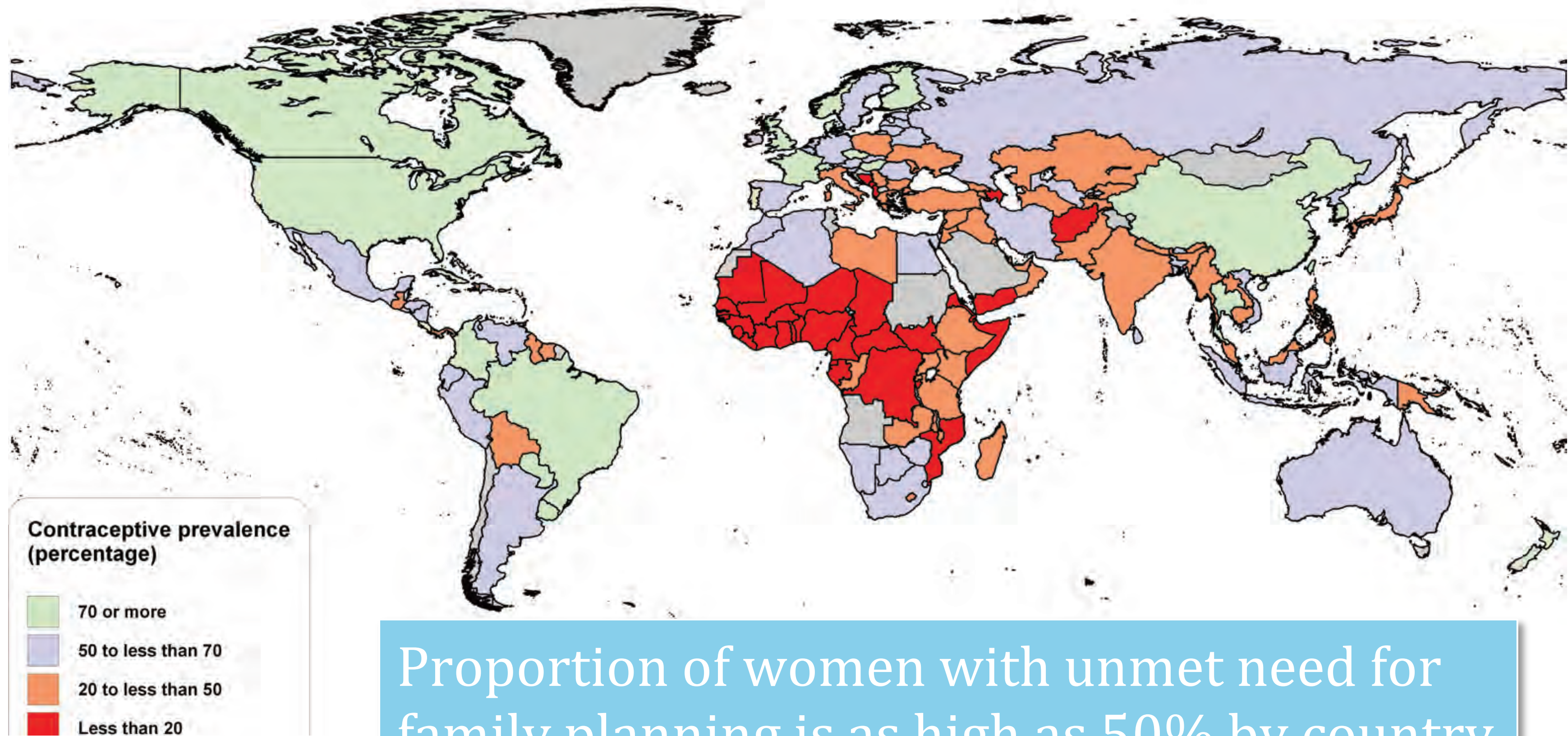
- Basics of contraceptive methods
- Patient-centered contraceptive care
- Evidence-based guidelines
- Importance of offering post-abortion contraception



U.S. Medical Eligibility Criteria for Contraceptive Use, 2010

Adapted from the World Health Organization Medical Eligibility Criteria for Contraceptive Use, 4th edition

Proportion Using Contraceptive Method



Proportion of women with unmet need for family planning is as high as 50% by country

Contraceptive Prevalence & Maternal Deaths

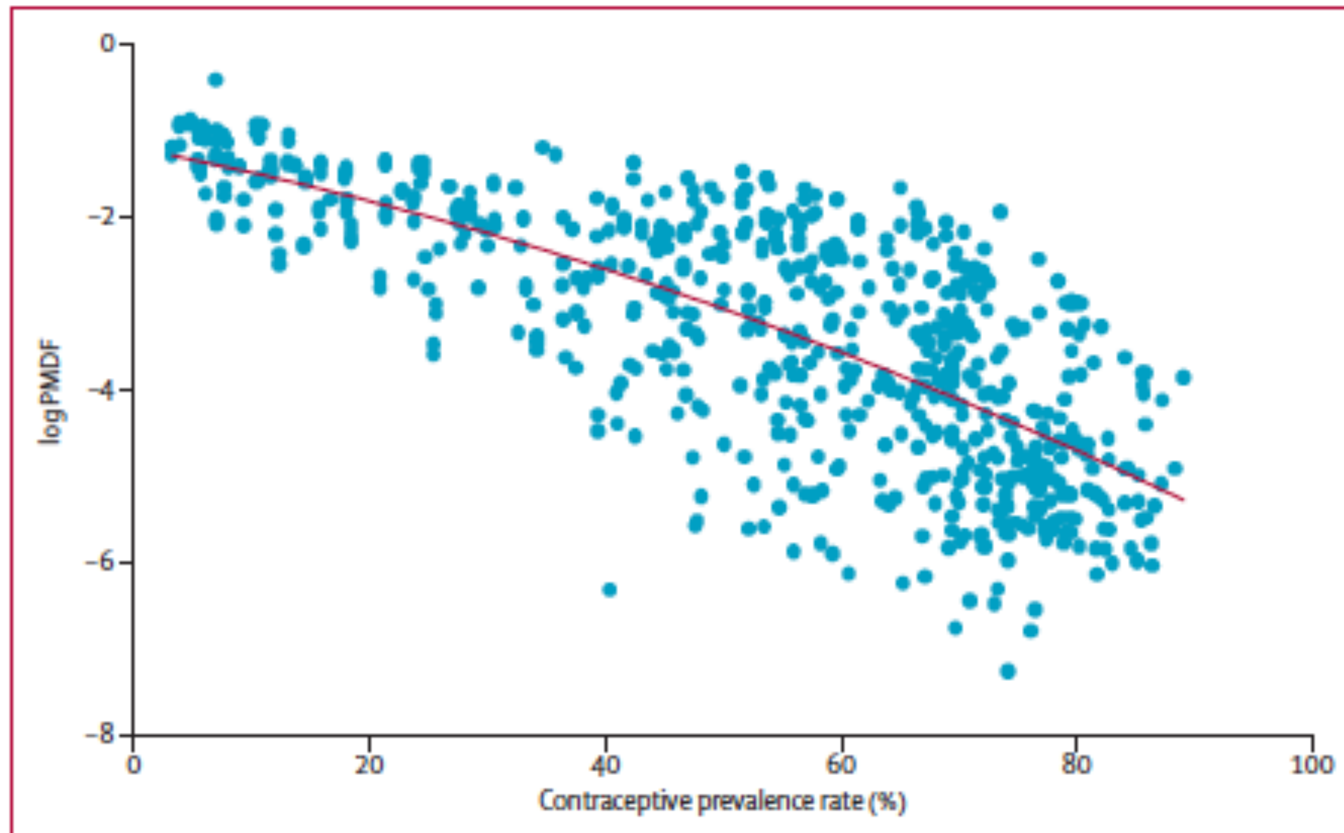


Figure 1: Contraceptive prevalence rate in relation to log of the proportion of maternal deaths in deaths of women aged 15–49 years (log PMDF)

Effect of Unmet Need for Contraception

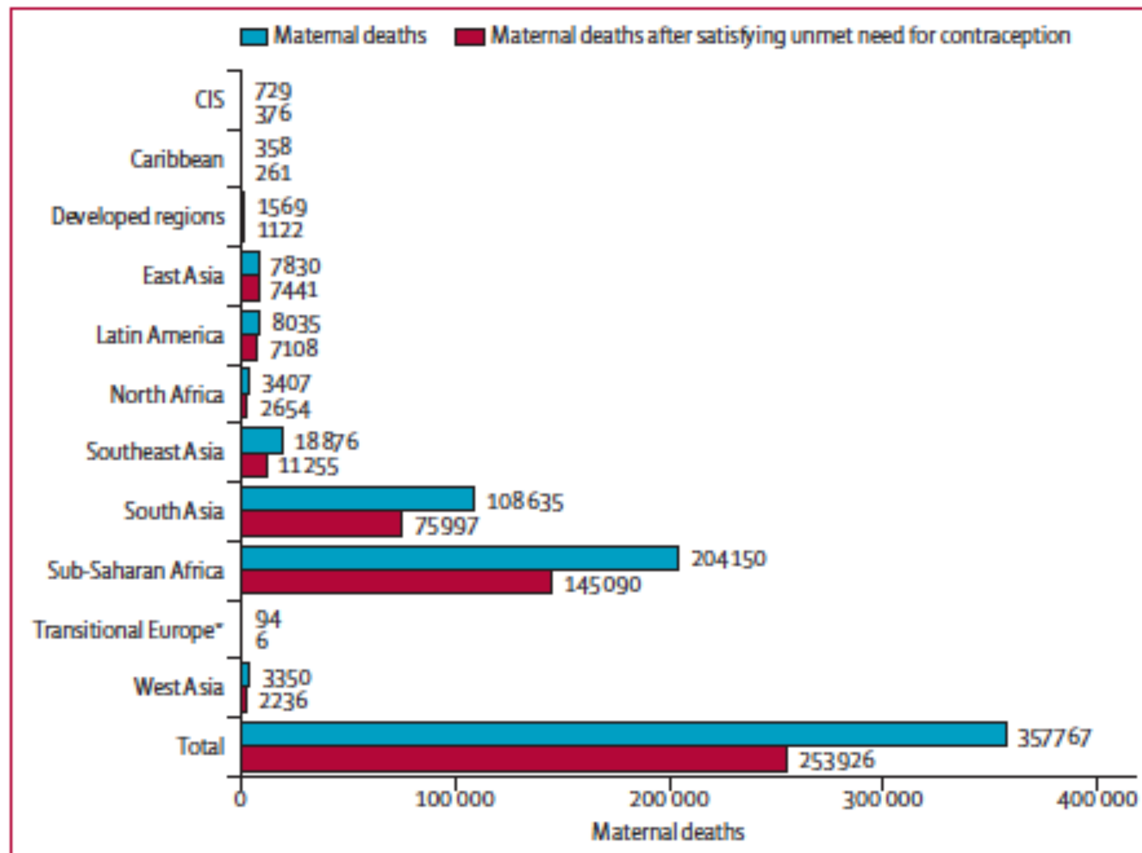
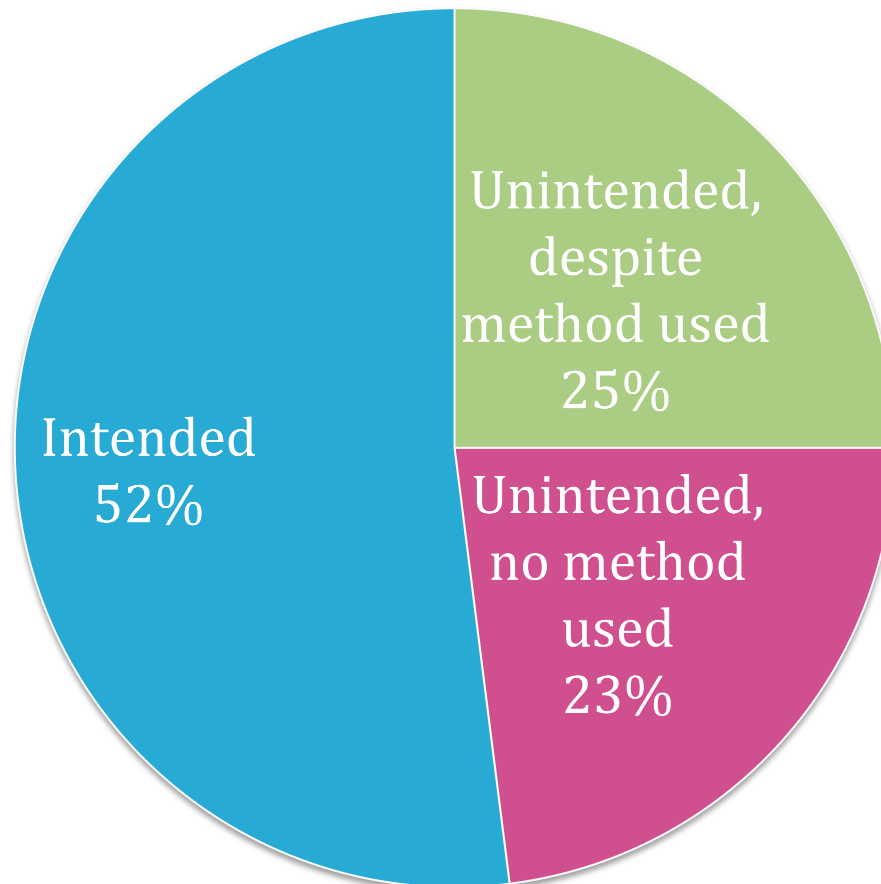


Figure 4: Expected reduction in maternal deaths if unmet needs for contraception are fulfilled

Ahmed et al. Lancet. 2012

U.S. Need for Contraception

Pregnancies in the United States



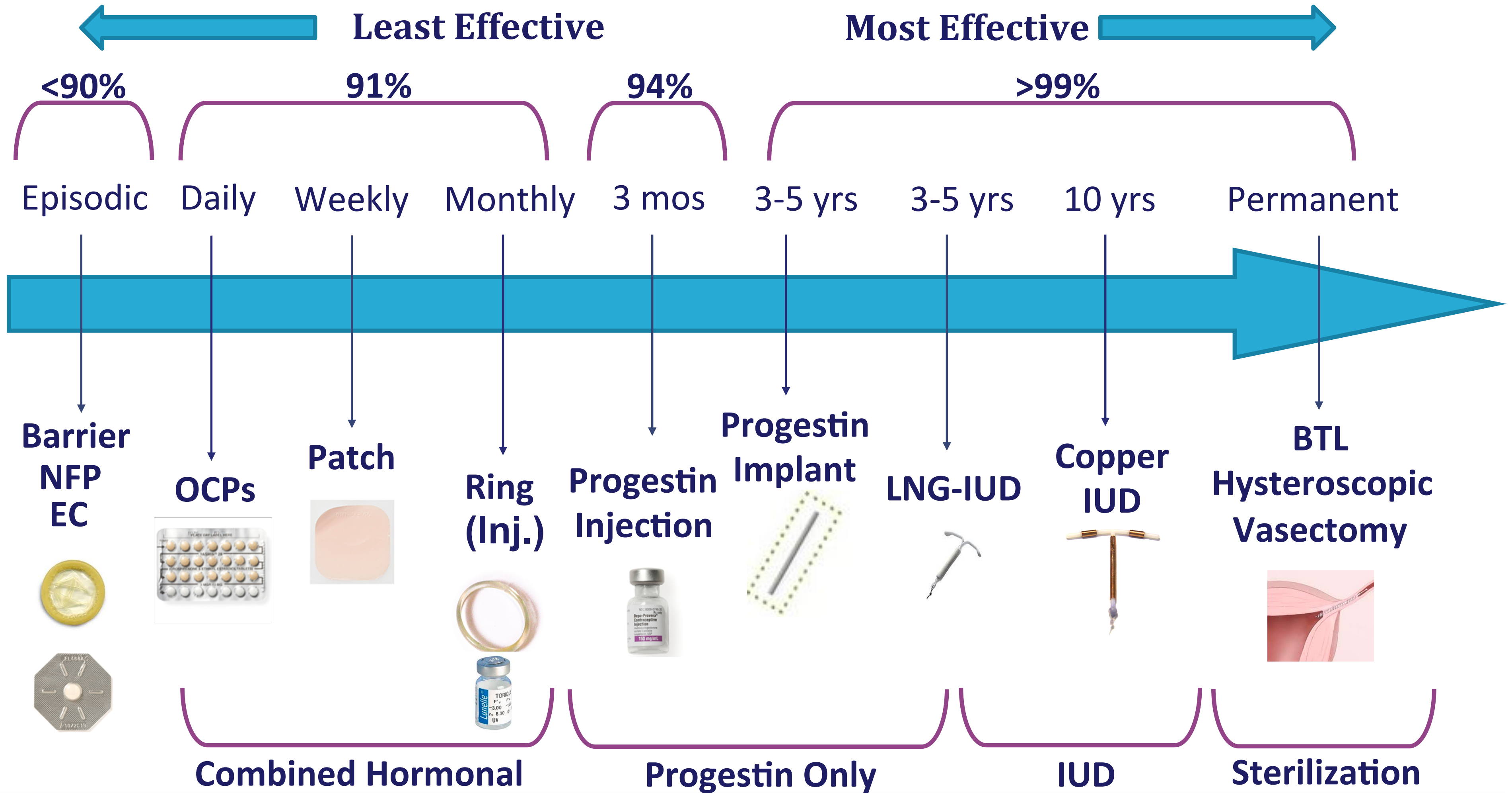
6.4 million unintended pregnancies

Public Health Goals: Contraception

- Meet unmet need for contraception
  - Increase availability of modern methods
  - Decrease financial cost and other barriers to access
- Facilitate effective use
- Make contraception available at all points of care
- Help individual women use best method for them

Contraceptive Methods

Contraception Methods



Contraceptive Efficacy

Perfect Use ≠ Typical Use

Lowest expected failure rate from clinical trials

What happens in real life

How effective is the combined oral contraceptive?

Perfect = <1% Typical = 9%

Natural Family Planning

Contraceptive Method	Failure Rate	
	Perfect Use	Typical Use
No Method	85%	85%
Withdrawal	4%	22%
Periodic Abstinence		
Standard Days Method®*	5%	12%
Symptothermal	<1%	13%
Two-Day Method®	4%	14%
Lactational Amenorrhea	<1%	2%

* Including Cycle Beads

Barrier Methods

Contraceptive Method	Failure Rate	
	Perfect Use	Typical Use
Condoms	2%	17%
Cervical Cap (parous/ nulliparous)	26%/9%	32%/16%
Sponge (parous/nulliparous)	20%/9%	24%/12%
Female Condoms	5%	21%
Diaphragm	6%	12%

Hormonal Methods

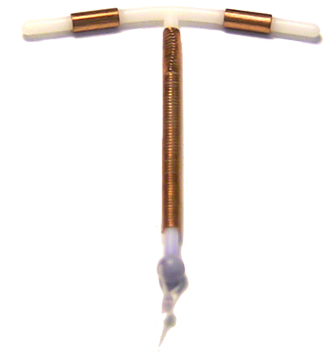
Contraceptive Method	Failure Rate	
	Perfect Use	Typical Use
Progestin Pills	<1%	9%
Combined Pill/Patch/Ring	<1%	9%
Combined 1-month injection	<1%	9%
3-Month Injection	<1%	6%
Implants	<1%	<1%
Copper IUD/LNG IUD	<1%	<1%

National Center Health Statistics; Contraceptive Technology

Long-acting Reversible or *Highly-effective* Contraceptives

Every 10 Years: Copper T IUD

- No hormones
- Effective for 12 years
  - Can be used as emergency contraceptive
- Efficacy 99.2% in one year
- Placed and removed by clinician
- Side effects
  - Heavier, regular bleeding
  - Immediate return to fertility
- Insertion-associated risk of PID then no increase



Other IUDs – like this one - last varying times

Every 3 or 5 Years: Levonorgestrel IUD

- Levonorgestrel
  - 5-year: 14-20 mcg/day
  - 3-year: 5-13 mcg /day – smaller device
- Efficacy 99.8% in one year
- Placed and removed by clinician
- Side effects
  - Initial spotting x 6 mos. then decreased blood loss
  - 5-year with more effect on blood loss
  - Immediate return to fertility
- Insertion-associated risk of PID then decreased

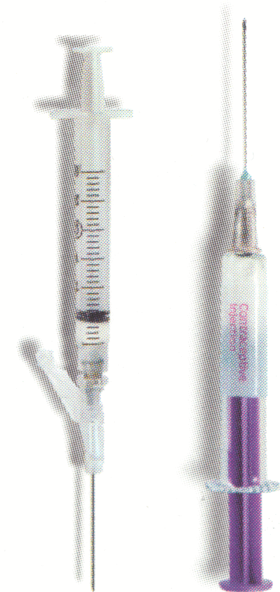
Every 3 Years: Single Implant

- Etonogestrel 25-60mcg/day
- Efficacy > 99.9%
- Implant placed and removed by clinician – 3 years
- Side effects
  - Decreased blood loss but common unpredictable spotting
  - Immediate return to fertility
- Also levonorgestrel, 2-implant method – 5 years

Short-acting or *Less-effective* Contraceptives

Every 3 Months: Progestin Injection

- Medroxyprogesterone acetate 150 mg IM or 104 mg SQ (also bimonthly injection)
- Efficacy 99.8% (perfect) / 94% (typical)
- Injection every 12 (13) weeks
- Side effects
  - Decreased blood loss – 50% with amenorrhea
  - Decreased bone mineral density
  - Delayed return to fertility



Monthly: Combined Hormonal Injection

- Estrogen and progestin – types and doses vary
- Efficacy 99.7% (perfect) / 91% (typical)
- Monthly IM injection
- Side effects – same as other combined methods
  - Decreased blood loss – may have spotting
  - Short-term nausea, vomiting, breast tenderness
  - Decreased acne
  - Increased risk venous thromboembolism (< preg.)
  - Immediate return to fertility

Monthly: Contraceptive Vaginal Ring

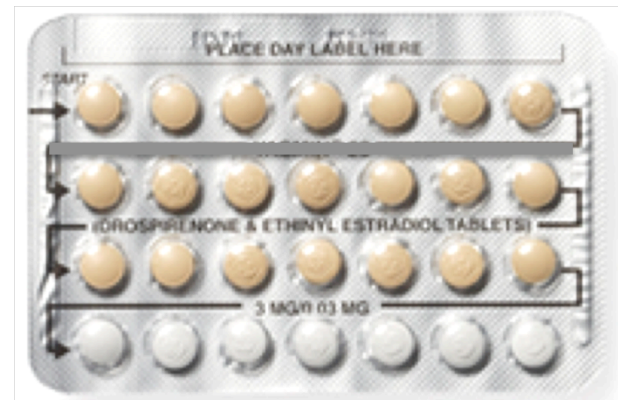
- Ethinyl estradiol and etonogestrel
  - 15 mcg EE & 120 mcg desogestrel
- Efficacy 99.7% (perfect) / 91% (typical)
- Use: One ring each month
  - can be used continuously
  - should not be out >3 hrs.
- Side effects
  - Same as other combined hormonal methods
  - Sometimes can feel ring

Weekly: Patch

- Norelgestromin (150 mcg) and Ethinyl Estradiol (20 mcg)
  - Higher estrogen exposure than a 35 mcg EE pill
- Efficacy 99.7% (perfect) / 91% (typical)
- Use: 1 patch per wk for 3 wks then 1 wk off
- Side effects
  - Same as other combined methods
  - Application site problems

Daily: Combined Oral Contraceptives

- Variety of estrogens + progestins / formulations
- Efficacy 99.7% (perfect) / 91% (typical)
- Use:
  - Traditional prescription flawed (3 wks / 1 wk)
  - Extended cycle or shortened placebo week may ↑efficacy
- Side effects
  - Same as other combined hormonal methods



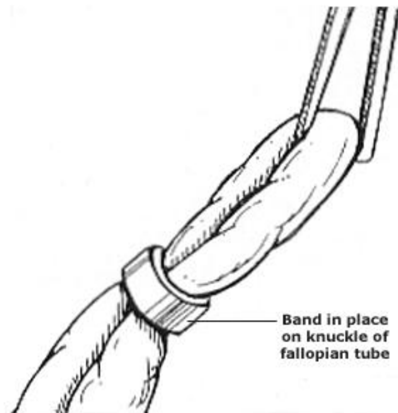
Daily: Progestin Pills

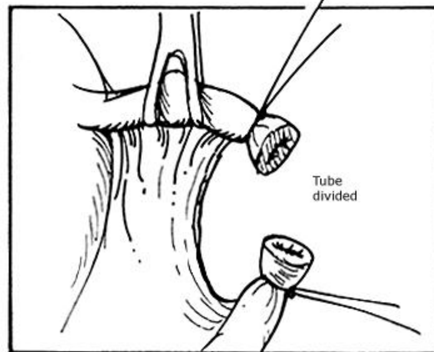
- Progestin – norethindrone 0.35 mg
- Efficacy 99.7% (perfect) / 91% (typical)
- Take one pill per day – at same time
- Side effects
  - Decreased blood loss; may have spotting
  - Immediate return to fertility

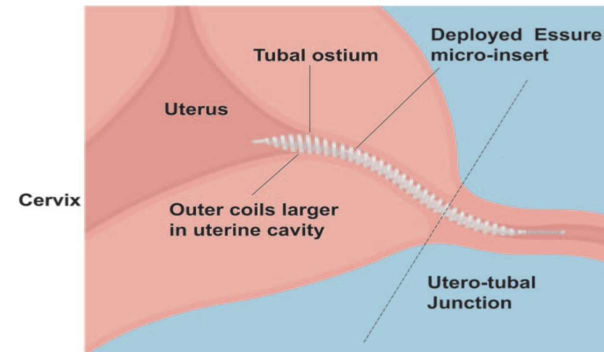
Permanent Methods of Contraception

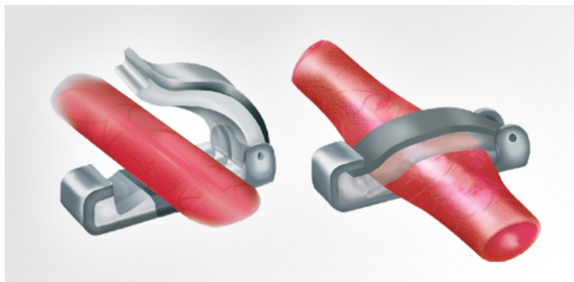
Permanent:
Tubal Sterilization and Vasectomy

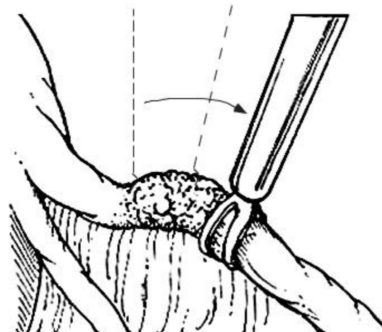
Efficacy 99.9% at one year and >97% at 10 years

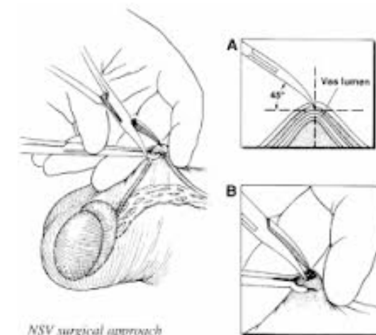












Emergency Contraception

Post-exposure: Emergency Contraception

Levonorgestrel – 2% failure

- 150 mg x 1, up to 5 days
- Delays LH peak

Ulipristal Acetate – 1% failure

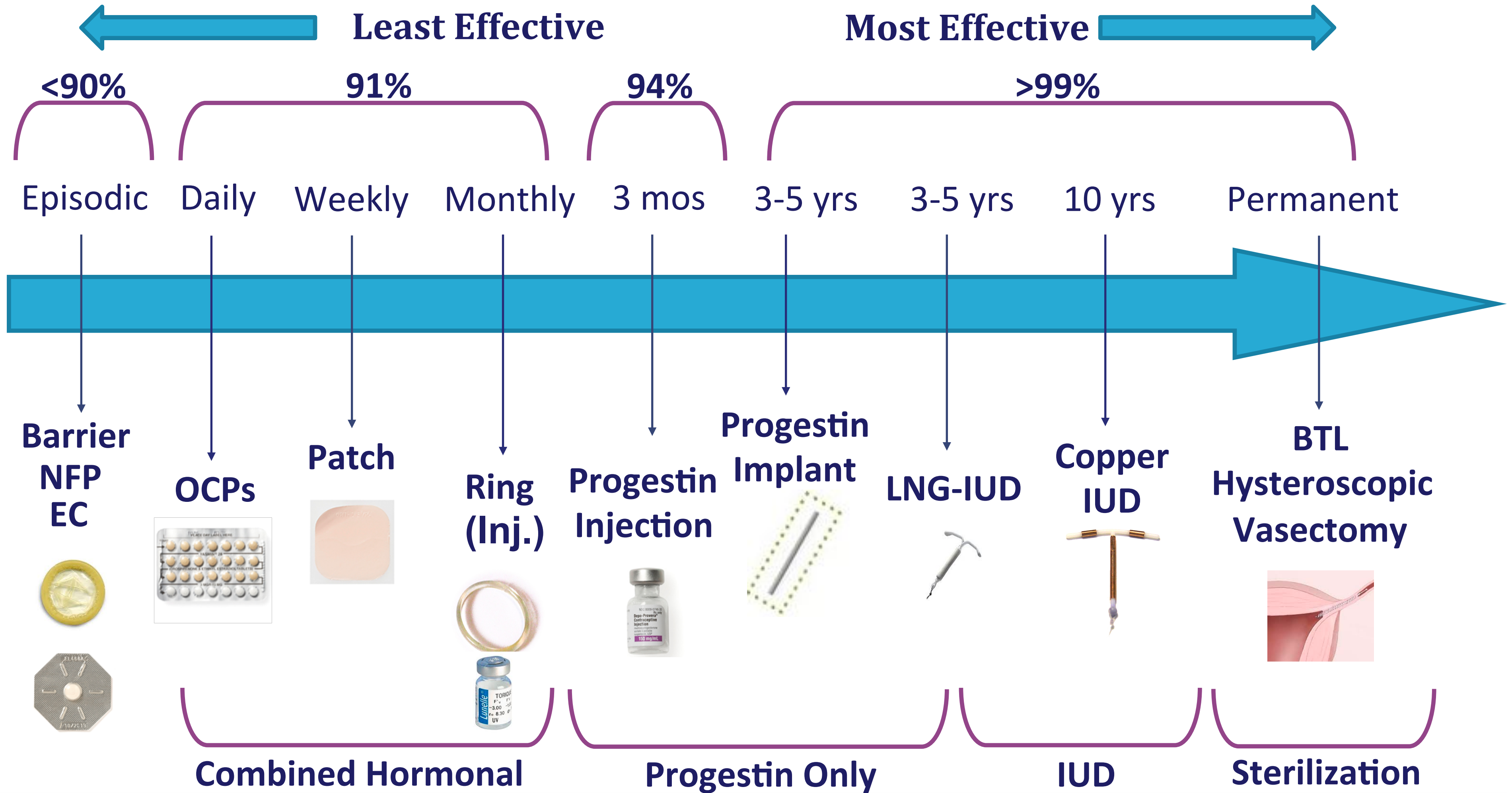
- 30 mg, up to 5 days
- Selective progesterone receptor modulator
- Delays LH peak and follicular rupture

Post-exposure: Emergency Contraception

- Copper IUD - <0.1% failure
  - VERY effective as EC
  - SPR recs up to 5 days
  - Can place beyond 5 days if not more than 5 days after ovulation
  - More effective than LNG EC
- Mifepristone (10, 25 or 50 mg)
- Yuzpe regimen
  - More side effects and less effective

Cheng, *Cochrane Database*, 2008

Contraception Methods



Providing Patient-centered and Evidence-based Contraceptive Care

Contraceptive Counseling

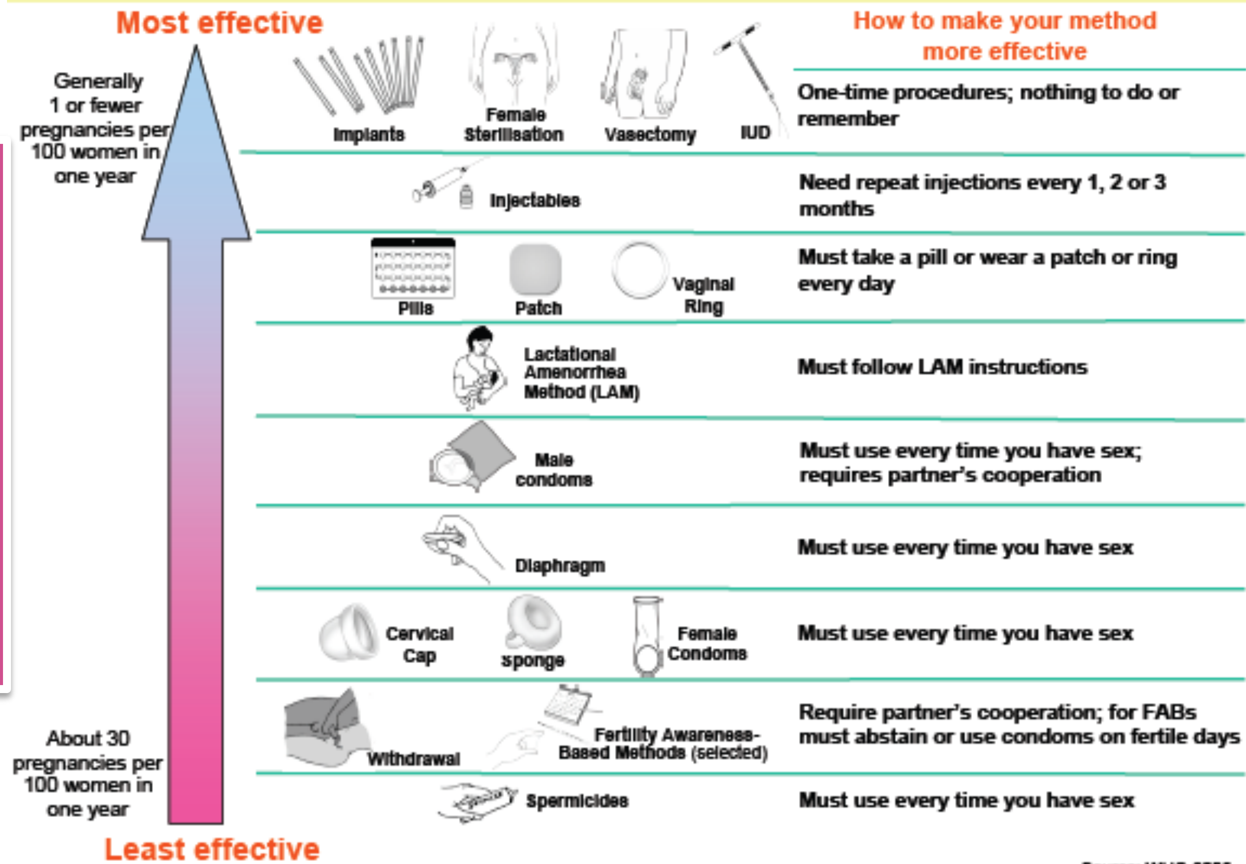
- Preference-sensitive decision
- Patient-centered care
- Respect diverse priorities, concerns, experiences
  - Efficacy
  - Convenience
  - Concern about, experience with or desire for side effects
  - Future pregnancy plans
  - Personal and friends'/family members' experiences
  - Safety concerns

Contraceptive Counseling

- Preference-sensitive decision
- Patient-centered care
- Questions to pose patients
  - Which method did you come today wanting to use?
  - Are you interested in one of the most effective?
  - When – if ever – do you want a (another) child?
  - What method(s) have you used in the past?
  - What are you doing to protect yourself from STIs?
  - What side effects are you willing to accept or desire?

Patient Education Materials

Many women do not understand efficacy and/or have other priorities.



Medical Eligibility Criteria (MEC)

- Evidence-based guidelines for safety of methods with co-existing conditions
- Modified by many countries – U.S.

World Health Organization

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

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

MMWR

Morbidity and Mortality Weekly Report

www.cdc.gov/mmwr

Early Release May 28, 2010 / Vol. 59

U.S. Medical Eligibility Criteria for Contraceptive Use, 2010

Adapted from the World Health Organization Medical Eligibility Criteria for Contraceptive Use, 4th edition

Medical Eligibility Criteria

1	Can use the method	No restrictions
2	Can use the method	Advantages generally outweigh theoretical or proven risks.
3	Should not use method unless no other method is appropriate	Theoretical or proven risks generally outweigh advantages
4	Should not use method	Unacceptable health risk

WHO MEC

Medical conditions

SUMMARY TABLES								
CONDITION	COC	CIC	P/R	POP	DMPA NET-EN	LNG/ ETG Implants	Cu-IUD	LNG-IUD
I = Initiation, **C** = Continuation								
ENDOCRINE CONDITIONS								
DIABETES								
a) History of gestational disease	1	1	1	1	1	1	1	1
b) Non-vascular disease								
(i) non-insulin dependent	2	2	2	2	2	2	1	2
(ii) insulin dependent	2	2	2	2	2	2	1	2
c) Nephropathy/ retinopathy/ neuropathy	3/4*	3/4*	3/4*	2	3	2	1	2
d) Other vascular disease or diabetes of >20 years' duration	3/4*	3/4*	3/4*	2	3	2	1	2
THYROID DISORDERS								
a) Simple goitre	1	1	1	1	1	1	1	1
b) Hyperthyroid	1	1	1	1	1	1	1	1
c) Hypothyroid	1	1	1	1	1	1	1	1
GASTROINTESTINAL CONDITIONS								
GALL-BLADDER DISEASE								
a) Symptomatic								
(i) treated by cholecystectomy	2	2	2	2	2	2	1	2
(ii) medically treated	3	2	3	2	2	2	1	2
(iii) current	3	2	3	2	2	2	1	2
b) Asymptomatic	2	2	2	2	2	2	1	2
HISTORY OF CHOLESTASIS								
a) Pregnancy-related	2	2	2	1	1	1	1	1
b) Past COC-related	3	2	3	2	2	2	1	2
VIRAL HEPATITIS								
a) Active	4	3/4*	4*	3	3	3	1	3
c) Carrier	1	1	1	1	1	1	1	1
CIRRHOSIS								
a) Mild (compensated)	3	2	3	2	2	2	1	2
b) Severe (decompensated)	4	3	4	3	3	3	1	3

Birth control methods

MEC Category

MEC = medical eligibility criteria

Birth Control Methods

Medical Conditions

Condition	Sub-condition	Combined pill, patch, ring	Progestin-only pill	Injection	Implant	LNG-IUD	Copper-IUD
		I C	I C	I C	I C	I C	I C
Deep venous thrombosis (DVT) /Pulmonary embolism (PE)	a) History of DVT/PE, not on anticoagulant therapy						
	i) higher risk for recurrent DVT/PE	4	2	2	2	2	1
	ii) lower risk for recurrent DVT/PE	3	2	2	2	2	1
	b) Acute DVT/PE	4	2	2	2	2	2
	c) DVT/PE and established on anticoagulant therapy for at least 3 months						
	i) higher risk for recurrent DVT/PE	4*	2	2	2	2	2
	ii) lower risk for recurrent DVT/PE	3*	2	2	2	2	2
	d) Family history (first-degree relatives)	2	1	1	1	1	1
	e) Major surgery						
	(i) with prolonged immobilization	4	2	2	2	2	1
	(ii) without prolonged immobilization	2	1	1	1	1	1
	f) Minor surgery without immobilization	1	1	1	1	1	1

MEC Category

Search: "WHO MEC"

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WHO | **Medical eligibility criteria** for contraceptive use
www.who.int/reproductivehealth/.../en/ World Health Organization
This document reviews the **medical eligibility criteria** for use of contraception, offering guidance on the safety of use of different methods for women and men with ...

[PDF] CDC. US **Medical eligibility criteria** for contraceptive us...
www.cdc.gov/.../rr... United States Centers for Disease Control and Preve...
May 28, 2010 - May 28, 2010 / Vol. 59. Morbidity and Mortality Weekly Report www.cdc.gov/mmwr. U.S. **Medical Eligibility Criteria** for. Contraceptive Use, 2010.
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CDC - United States **Medical Eligibility Criteria** (USMEC) fo...
www.cdc.gov/.../us... United States Centers for Disease Control and Preve...
Jan 20, 2014 - The United States **Medical Eligibility Criteria** for Contraceptive Use, 2010 (US **MEC**) is intended to assist health care providers when counseling ...
US MEC Resources - Video Commentary - iPhone, iPad App

[PDF] CDC Summary Chart-US **Medical Eligibility Criteria** for ...

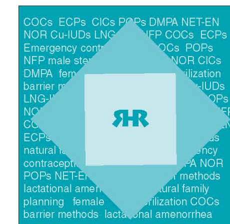
Selected Practice Recommendations (SPR)

- Evidence-based guidelines for how to use methods
- Modified recently by US

World Health Organization

SELECTED PRACTICE RECOMMENDATIONS FOR CONTRACEPTIVE USE

Second edition, 2004



Centers for Disease Control and Prevention

MMWR

Morbidity and Mortality Weekly Report

Recommendations and Reports / Vol. 62 / No. 5 — June 21, 2013

U.S. Selected Practice Recommendations for Contraceptive Use, 2013

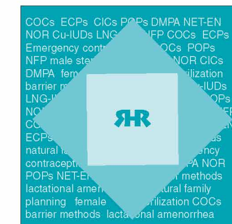
Adapted from the World Health Organization Selected Practice Recommendations for Contraceptive Use, 2nd Edition

For Each Method…

- When to start – “anytime if reasonably sure that she is not pregnant”
- How long to use backup
- Special considerations
- Missed or late doses

SELECTED PRACTICE RECOMMENDATIONS FOR CONTRACEPTIVE USE

Second edition, 2004



UCSF

innovating education in reproductive health

Post-abortion Contraception

Post-abortion Contraception

- Majority of women desire contraceptive counseling.
- Vast majority of US abortion clinics provide education and dispense contraception – 1/3 IUD
- Contraceptive counseling at time of abortion important
  - RCT in Brazil – group v. individual counseling
  - Individual counseling increased uptake, continuation, (98% v. 70% at 6 months,) adherence, satisfaction
- Effective contraception decreases subsequent abortion.

Kavanaugh, *Contraception*, 2010. Kavanaugh, *Contraception*, 2011. Ferreira, *Contraception*, 2011.

WHO and US Medical Eligibility Criteria: Post-abortion

	CHC	POP	Progestin Inj.
1st trimester	1	1	1
2nd trimester	1	1	1
Immediate post-septic abortion	1	1	1

WHO and US Medical Eligibility Criteria: Post-abortion

	Implant	LNG-IUD	Cu-IUD
1st trimester	1	1	1
2nd trimester	1	2	2
Immediate post-septic abortion	1	4	4

Immediate Post-abortion IUD

- Cochrane Review
  - Immediate insertion **safe** and **effective**
  - Expulsion rates may be as high as 7%
  - Use at 6 months higher in immediate insertion group
- RCT: 69% did not return for interval insertion
- Prospective cohort study: Subsequent abortion risk 35/1000 IUD v. 92/1000 other methods
- Medication abortion – place one week after

Immediate postabortal insertion of intrauterine devices (Review)

Grimes DA, Lopez LM, Schulz KF, Stanwood NL

Grimes et al. *Cochrane D.base of Sys Rev* 2010; Drey, *Contraception*, 2009. Fox, *Contraception*, 2011; Goodman, *Contraception*, 2008

Immediate Post-abortion IUD

- 2011 RCT in NEJM
  - 575 women randomized after abortion 5-12 wks.
  - 100% immediate and 70% interval placement
- Expulsion rate 5% v. 2.3%
- 92% (immediate) and 77% (delayed) women using IUD at 6 months

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Immediate versus Delayed IUD Insertion after Uterine Aspiration

Paula H. Bednarek, M.D., M.P.H., Mitchell D. Creinin, M.D.,
Matthew F. Reeves, M.D., M.P.H., Carrie Cwiak, M.D., M.P.H.,
Eve Espey, M.D., M.P.H., and Jeffrey T. Jensen, M.D., M.P.H.,
for the Post-Aspiration IUD Randomization (PAIR) Study Trial Group

ABSTRACT

BACKGROUND

Intrauterine devices (IUDs) provide highly effective, reversible, long-term contraception that is appropriate for many women after first-trimester uterine aspiration. However, the effects of immediate versus delayed IUD insertion after uterine aspiration on rates of complications and IUD use are uncertain.

METHODS

We performed a randomized noninferiority trial involving women undergoing uterine aspiration for induced or spontaneous abortion at 5 to 12 weeks of gestation who desired an IUD. Subjects were randomly assigned (in a 5:6 ratio) to IUD insertion immediately after the procedure or 2 to 6 weeks afterward (delayed insertion). The primary outcome was the rate of IUD expulsion 6 months after IUD insertion; an expulsion rate 8 percentage points higher in the immediate-insertion group was defined as inferior.

RESULTS

Among 575 women who underwent randomization, an IUD was inserted in 100% (258 of 258) of the women in the immediate-insertion group and in 71.3% (226 of 317) of those in the delayed-insertion group (difference, 28.7 percentage points; 95% confidence interval [CI], 23.7 to 33.7). The 6-month expulsion risk was 5.0% (13 of 258 women) after immediate insertion and 2.7% (6 of 226) after delayed insertion (difference, 2.3 percentage points; 95% CI, −1.0 to 5.8), which was consistent with the predefined criterion for noninferiority. Six-month rates of IUD use were higher in the immediate-insertion group (92.3%, vs. 76.6% after delayed insertion; P<0.001). Adverse events were rare and did not differ significantly between groups. No pregnancies occurred in the immediate-insertion group; five occurred in the delayed-insertion group (P=0.07), all in women who never received an IUD.

CONCLUSIONS

The 6-month rate of expulsion of an IUD after immediate insertion was higher than but not inferior to that after delayed insertion. Immediate insertion resulted in higher rates of IUD use at 6 months, without an increased risk of complications. (Funded by the Susan Thompson Buffett Foundation; ClinicalTrials.gov number, NCT00562276.)

From the Department of Obstetrics and Gynecology, Oregon Health and Science University, Portland (P.H.B., J.T.J.); the Department of Obstetrics, Gynecology, and Reproductive Sciences, University of Pittsburgh (M.D.C., M.F.R.); and the Department of Epidemiology, University of Pittsburgh Graduate School of Public Health (M.D.C.) — both in Pittsburgh; the Department of Gynecology and Obstetrics, Emory University, Atlanta (C.C.); and the Department of Obstetrics and Gynecology, University of New Mexico, Albuquerque (E.E.). Address reprint requests to Dr. Bednarek at the Department of Obstetrics and Gynecology, Oregon Health and Science University, 3181 SW Sam Jackson Park Rd., UHN 50, Portland, OR 97239, or at bednarek@ohsu.edu.

This article (10.1056/NEJMoa1011600) was updated on June 10, 2011, at NEJM.org.

N Engl J Med 2011;364:2208-17.

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2208 N ENGL J MED 364;23 NEJM.ORG JUNE 9, 2011

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- Published success stories – changing practice

Conclusion

- Contraception saves women's lives.
- There is a large unmet need for contraception.
- Patient-centered contraception care is critical.
- Women undergoing abortion should have access to contraceptive counseling and to all methods.