

Preconception Counseling

Jan Shepherd, MD, FACOG



Objectives

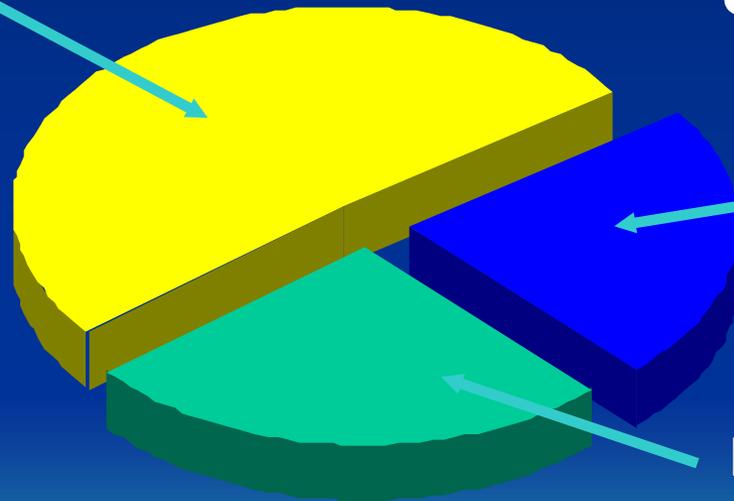
- Discuss the concept of a “Reproductive Life Plan” and its role in preconception and inter-conception counseling.
- Describe current evidence for the importance of preconception care.
- Identify important components of preconception care.



U.S. Pregnancies: Unintended vs. Intended

Intended 49%

Unintended 51%



Unintended births 30%

Elective abortions 21%

Unintended Pregnancies and Their Consequences

- Women aged 15–44 years
 - 48% ≥ 1 unintended pregnancy in lifetime
 - 30% ≥ 1 induced abortion
 - 28% ≥ 1 unplanned birth
- Maternal morbidity/mortality
- Infant morbidity/mortality



Reproductive Life Plan

- Being intentional about preparing for and starting pregnancies
- Making conscious decisions about
 - When to have children
 - How many to have
 - Ensuring the healthiest pregnancies and families

Reproductive Life Plan

- Clinicians help clients make a Reproductive Life Plan by asking the questions:
 - Do you want to have children?
 - How many?
 - When?

Every woman, every year!



Other Approaches to RLP

- One Key Question
 - “Do you plan to get pregnant this year?”
- Client with negative pregnancy test
 - If relieved → contraceptive counseling
 - If disappointed → preconception care



Reproductive Life Plan

- First component
 - **Contraception** when pregnancy not desired
 - Role of LARC
 - Fertility-preserving behavior
- Second component
 - **Preconception Care**



Clinical Benefits of Planned Pregnancies

Allows women to: Avoid toxic substances
Initiate vitamin supplementation
Undergo preventive testing
Stabilize medical conditions
Substitute/eliminate teratogenic medications

Results:
↓ Risk miscarriage/preterm delivery
↓ Risk fetal/infant morbidity/mortality

Yet only 18.4% of US women receive preconception care

Risks of Unintended Pregnancy

Maryland PRAMS* 2001-2005

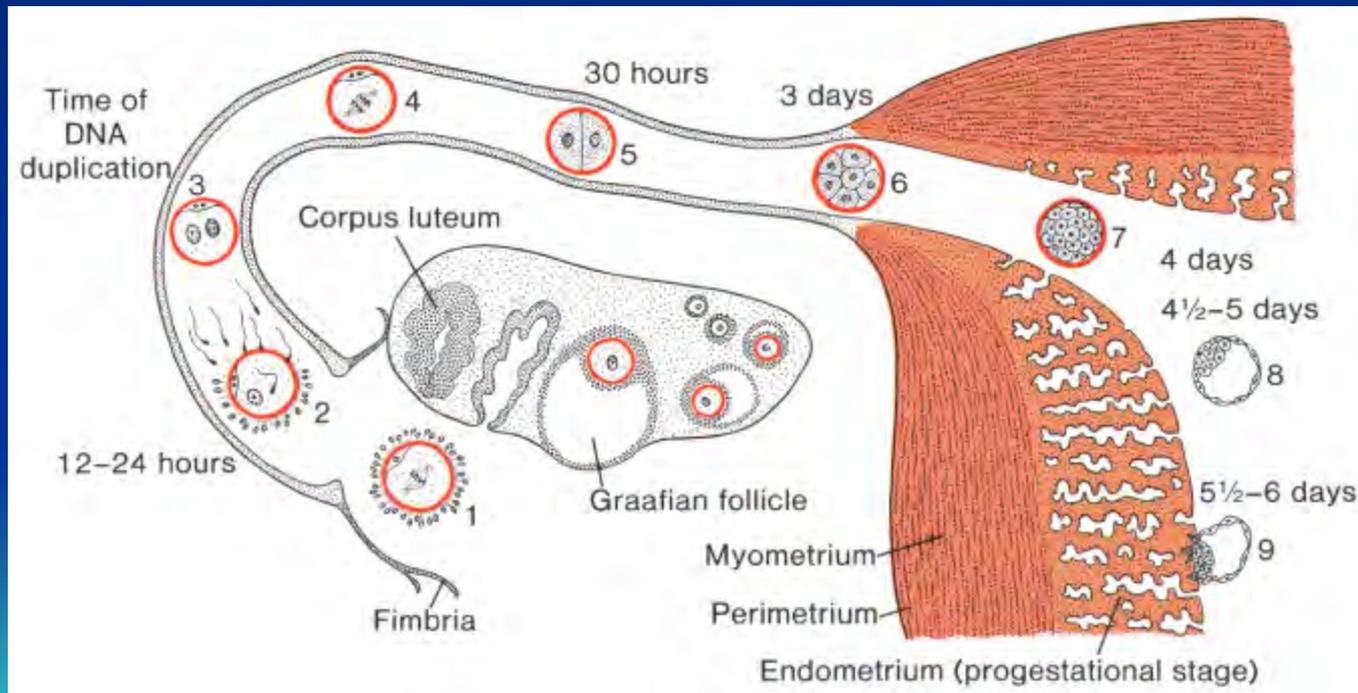
	Intended	Unintended
Prenatal Care In 1 st Trimester	87%	56%
Daily Multivitamins	42%	14%
Smoking During Pregnancy	8%	24%
Physical Abuse	3%	11%
Low birth Weight Baby	7%	10%
Breast feeding	81%	63%
“Back to sleep”	69%	50%
Postpartum Depression	15%	27%

* Pregnancy Risk Assessment Monitoring System

Risks in Early Development

Pre-embryo – first 2 weeks after fertilization

- One week preimplantation
- One week placental development



Risks in Early Development

- **Embryo – from 2 weeks after fertilization (the time a woman expects her next period) until 6-8 weeks after fertilization (8-10 weeks in obstetric terms)**
 - All organs form
 - Key time for teratogenicity
- Fetus
 - The remainder of the pregnancy
 - Time of organ maturation and development



A Case Example

Mary is a 37-year-old Caucasian female g0p0 who has been coming to your clinic for her annual exam for three years. She has not been sexually active during that time so has not needed contraception. Today she states she met a wonderful man and would like to talk about birth control - but only for the short term. She is planning to get married in a few months and would like to start a family right away.

Medical history – negative except ↑ bp for which she takes an ACE inhibitor

Social history – smokes 1 pack per day

Physical exam –

bp 138/84, height 5'2", weight 180#
otherwise unremarkable

How will you counsel Mary based on her specific situation?

Components of Preconception Care

- Identification of risks
 - Medical, reproductive, and family history
 - Nutritional habits
 - Drug and environmental exposures
 - Social issues
- Provision of education based on risks
- Initiation of desired interventions



General Health

- Review healthy diet/nutrition
 - **Folic acid 400 μg \rightarrow 73% \downarrow in neural tube defects**
 - Iron, Calcium, Iodine, Omega-3 fatty acids
- ↓
- Begin prenatal vitamins
- Dental check-up
 - Periodontal disease \rightarrow risk of preterm labor
 - Avoid procedures during pregnancy



General Health

- Assess BMI
 - If increased →
 - Maternal risk of hypertension, diabetes, VTE
 - Fetal risk of congenital and growth abnormalities, stillbirth

↓

Give specific suggestions for calorie control, exercise

GTT if BMI > 30 or >25 with other risk factors

Consider bariatric surgery if morbidly obese
 - If decreased → risk of infertility, IUGR
 - Rule out anorexia, malabsorption, endocrine problem
- Assess substance use/abuse



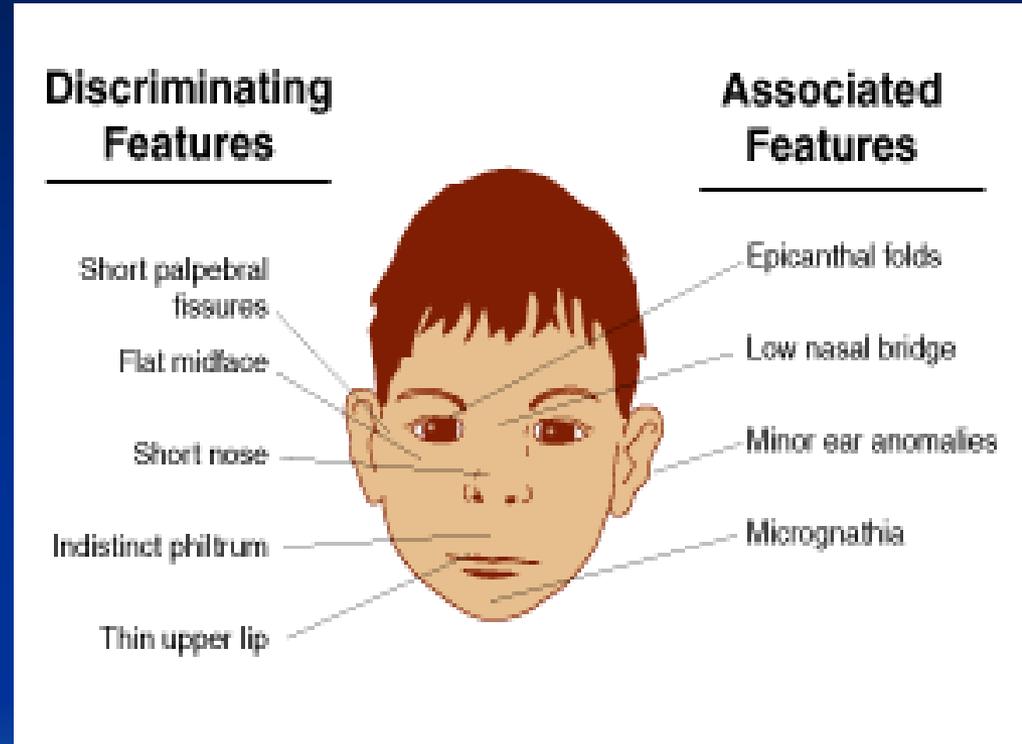
Smoking during Pregnancy

- Responsible for:
 - 7-10% of pre-term deliveries
 - 17-26% of low-birth-weight infants
 - 5-6% of perinatal deaths
- Cessation interventions proven effective
 - Reduced incidence of IUGR
 - Fewer low-birth-weight infants
 - Shown to be cost-effective



Alcohol Abuse

- No established safe level of alcohol in pregnancy
- Fetal Alcohol Effects
 - Spontaneous abortion
 - Fetal growth restriction
 - Physical anomalies
 - Neurologic deficits
- Most common preventable cause of mental retardation



Fetal Alcohol Syndrome
(4-6 drinks/day)

How many drinks do you have per week? Per day?

Other Mood-Altering Substances

- Cocaine
 - Teratogenic
 - ↑ Abruptio placenta, preterm labor
 - Neonatal withdrawal
- Opiates
 - Neural tube defects
 - Neonatal withdrawal
- Marijuana
 - Possible effects on intellectual development

Have you used any drugs other than for medical conditions?

Importance of Spacing Pregnancies

Table 5. Meta-analysis of Dose-Response Regression Slopes and Prediction of the Risk of Adverse Perinatal Outcomes for Interpregnancy Intervals <18 Months and >59 Months

Risk Increase	Increase, % (95% CI)		
	Preterm Birth (12 Studies)	LBW (7 Studies)	SGA (12 Studies)
Per month for intervals <18 mo*	1.92 (1.80-3.04)	3.25 (3.09-3.41)	1.52 (1.40-1.64)
Per month for intervals >59 mo†	0.55 (0.49-0.61)	0.91 (0.83-0.99)	0.76 (0.71-0.81)
Predicted by the model			
Interpregnancy interval, mo			
3	28.8 (27.0-30.6)	48.8 (46.4-51.2)	22.8 (21.0-24.6)
6	23.0 (21.6-24.5)	39.0 (37.1-40.9)	18.2 (16.8-19.7)
9	17.3 (16.2-18.4)	29.3 (27.8-30.7)	13.7 (12.6-14.8)
12	11.5 (10.8-12.2)	19.5 (18.5-20.5)	9.1 (8.4-9.8)
15	5.8 (5.4-6.1)	9.8 (9.3-10.2)	4.6 (4.2-4.9)
18-59‡	1.00	1.00	1.00
72	6.6 (5.9-7.3)	10.9 (10.0-11.9)	9.1 (8.5-9.7)
96	19.8 (17.6-22.0)	32.8 (29.9-35.6)	27.4 (25.6-29.2)
120	33.0 (29.4-36.6)	54.6 (49.8-59.4)	45.6 (42.6-48.6)
144	46.2 (41.2-51.2)	76.4 (69.7-83.2)	63.8 (59.6-68.0)

Abbreviations: CI, confidence interval; LBW, low birth weight; SGA, small for gestational age.

*Risk increase per each month that interpregnancy interval is shortened from 18 months.

†Risk increase per each month that interpregnancy interval is lengthened from 59 months.

‡Reference category.

Maternal Age

- Age \geq 35 at delivery
 - Decreased fertility
 - Increased maternal and fetal complications
 - Risk of trisomy 21, 13, 18 increase with age

	Risk of trisomy 21	Risk of any aneuploidy
Age 35	1/378	1/192
Age 40	1/106	1/66
Age 45	1/30	1/21

Other Genetic Risk Factors

- Family history
 - Birth defects
 - Common genetic disorders
- Pregnancy history (patient and partner)
 - Previous stillbirth
 - Recurrent miscarriage

→ Consider referral to genetic counselor



Offer Carrier Screening

Disease	Background	Carrier rate
Sickle cell	African-American, Middle Eastern, Mediterranean, Caribbean	1/12
Cystic Fibrosis	Northern European	1/23
Tay-Sachs	Ashkenazi Jewish, French-Canadian, Cajun	1/30
β -Thalassemia	Mediterranean, Southeast Asian, Indian, Pakistani, African	1/30
α -Thalassemia	Southeast Asian, Chinese, African	1/25

Immunizations Up To Date

- Tetanus-diphtheria-pertussis (Td or Tdap)
- Screen for rubella immunity
 - If negative, give measles, mumps, and rubella
- Screen for Varicella immunity
 - If negative, immunize
- Hepatitis B, if not previously immunized
- Influenza vaccine every year
- HPV if age ≤ 26

Infectious Disease

- **Screen for HIV**
- Chlamydia, Gonorrhea, and Syphilis screen if high-risk
- Ask about history of HSV infection, patient and partner
 - If patient positive, counsel about risks
 - If patient negative and partner positive, test patient
- Toxoplasmosis screen, if requested
 - If screen negative, counsel preventive measures during pregnancy
- Cytomegalovirus
 - If around young children, advise precautions



Stabilize Medical Conditions

- **Diabetes mellitus**
 - Counsel about risk of fetal and maternal complications, possible hospitalization
 - Type II may require insulin
 - **Tight preconception glucose control → 3x ↓ risk of birth defects, ↓ stillbirth, miscarriage**
- Hypertension
 - Counsel about risk of preeclampsia, fetal growth restriction, abruptio placenta
 - Check for retinopathy, nephropathy
 - Evaluate teratogenicity of current therapy



- **Epilepsy**
 - Counsel about risk of 2-3x risk of birth defects
 - ? related to medications or the disease itself
 - If no seizures for 2 years, give trial off medication
 - If therapy required, evaluate teratogenicity and give lowest possible dose of monotherapy
 - **Folic acid 4 mg qd**
- Thyroid disease – check thyroid profile
 - Hypothyroidism
 - If inadequate replacement → ↑ low-birth-weight infants, preeclampsia
 - Hyperthyroidism
 - If inadequately controlled → ↑ low-birth-weight infants, preterm delivery



- Asthma
 - Physiologic changes promote maternal hypoxemia
 - Uncontrolled → ↑ fetal hypoxia, preeclampsia, IUGR
- Sickle cell disease
 - Counsel that pregnancy → ↑ risk of frequency/severity of crises, maternal mortality; 30% risk of fetal mortality
- Others
 - Cardiovascular disease
 - Renal disease
 - PKU
 - Thrombophilia
 - Autoimmune diseases
 - Depression/Psychiatric conditions

In the past 2 weeks, have you felt depressed or hopeless?

Medications in Pregnancy and Breast Feeding: Pregnancy Risk Factors (PRF)

PRF Category

Description

- | | |
|----------|--|
| A | Controlled human studies demonstrate no evidence of risk in pregnancy in any trimester and the possibility of fetal harm appears remote. |
| B | Animal-reproduction studies have not demonstrated fetal risk and there are no controlled human studies, or Animal – reproduction studies have demonstrated an adverse effect that was not confirmed in controlled human studies in the first trimester and there is no evidence of a risk in later trimesters. |
| C | Animal-reproduction studies have demonstrated an adverse fetal effect and there are no controlled human studies or Animal-reproduction and human studies are not available so that drugs should be given only if the potential benefits justify the potential risk to the fetus. |
| D | Positive evidence of human fetal risk exists but use may be acceptable despite the fetal risk if the drug is needed in a life-threatening situation, or for a serious disease for which safer drugs cannot be used or are ineffective. |
| X | Animal-reproductive and / or human studies demonstrate fetal abnormalities such that the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. <i>Use of Class X drugs is contraindicated in women who are or may become pregnant.</i> |



Known Teratogenic Medications

- Androgens
- ACE inhibitors
- Antiepileptics – esp. valproate
- Coumadin
- Folic acid antagonists – e.g. trimethoprim
- Isotretinoin
- Lithium
- Statins
- Tetracycline



Over-the-Counter Medications

- Minimize use
- Discontinue aspirin
- The safety of most “dietary supplements” in pregnancy is unknown
- Fat soluble vitamins (especially vitamin A) can be teratogenic if overdosed



Environmental Exposures

- Mercury
 - Avoid eating shark, swordfish, king mackerel, tilefish
 - Limit other fish to 6 oz twice a week
- Water hazards
 - Have well water checked
 - Bisphenol A (BPA) in water bottles
- Home/Workplace
 - Exposure to toxins, e.g. organic solvents, mercury, lead, vinyl monomers, pesticides, radiation
 - Heavy lifting, prolonged standing, night shifts



Psychosocial Risks

- Inadequate financial resources
- Access to care
- Relationship status
 - Partner supportive? Other family members?
 - Physical/sexual abuse
 - 4-8% of pregnant women are physically abused
→ abruptio placenta, fetal fractures, preterm birth, rupture of uterus, liver, spleen, etc.
 - Prior abuse likely to continue or ↑ in pregnancy

Do you feel safe at home? Does anyone threaten or hurt you?

Putting It All Together

Mary is a 37-year-old Caucasian female who has been coming to your clinic for her annual exam for three years. She has not been sexually active during that time so has not needed contraception. Today she states she met a wonderful man and would like to talk about birth control - but only for the short term. She is planning to get married in a few months and would like to start a family right away.

Medical history – negative except ↑ bp for which she takes an ACE inhibitor

Social history – smokes 1 pack per day

Physical exam –

bp 138/84, height 5'2", weight 180#
otherwise unremarkable

What are some additional counseling points you have learned?

Additional Planning

- Discontinuing contraception
- Recommend patient keep a menstrual calendar
- Emphasize importance of early and continuous prenatal care, structured based on patient's individual risks



What a lot to think About!

- Most Important Factors
 - Folic Acid Supplementation
 - Smoking Cessation
 - Alcohol Intervention
 - Discontinuing Teratogenic Medications
 - Diabetes Control
 - Reduction of Obesity
 - Dental Care



GUIDELINES AND CHECKLIST AVAILABLE AT:

<http://healthteamworks.ebizcdn.com/33ee91ce2ccb45f59859a5eef3229d50>

<http://healthteamworks.ebizcdn.com/061412e4a03c02f9902576ec55ebbe77>





PRECONCEIVING SCREENING AND COUNSELING CHECKLIST



NAME _____	BIRTHPLACE _____	AGE _____
DATE: / /		ARE YOU PLANNING TO GET PREGNANT IN THE NEXT SIX MONTHS? <input type="checkbox"/> Y <input type="checkbox"/> N
IF YOUR ANSWER TO A QUESTION IS YES, PUT A CHECK MARK ON THE LINE IN FRONT OF THE QUESTION. FILL IN OTHER INFORMATION THAT APPLIES TO YOU		

DIET & EXERCISE

What do you consider a healthy weight for you? _____

Do you eat three meals a day?

Do you follow a special diet (vegetarian, diabetic, other)?

Which do you drink (coffee tea cola milk water other soda/pop other _____)?

Do you eat raw or undercooked food (meat, other)?

Do you take folic acid?

Do you take other vitamins daily (multivitamin vitamin A other)?

Do you take dietary supplements (black cohosh pennyroyal other)?

Do you have current/past problems with eating disorders?

Do you exercise? Type/frequency: _____

Notes: _____

LIFESTYLE

Do you smoke cigarettes or use other tobacco products?

How many cigarettes/packs a day? _____

Are you exposed to second-hand smoke?

Do you drink alcohol?

What kind? _____ How often? _____ How much? _____

Do you use recreational drugs (cocaine, heroin, ecstasy, meth/ice, other)?

List: _____

Do you see a dentist regularly?

What kind of work do you do? _____

Do you work or live near possible hazards (chemicals, x-ray or other radiation, lead)? List: _____

Do you use saunas or hot tubs?

NOTES: _____

MEDICATION/DRUGS

Are you taking prescribed drugs (Accutane, valproic acid, blood thinners)? List them: _____

Are you taking non-prescribed drugs?

List them: _____

Are you using birth control pills?

Do you get injectable contraceptives or shots for birth control?

Do you use any herbal remedies or alternative medicine?

List: _____

NOTES: _____

MEDICAL/FAMILY HISTORY

Do you have or have you ever had:

Epilepsy?

Diabetes?

Asthma?

High blood pressure?

Heart disease?

Anemia?

Kidney or bladder disorders?

Thyroid disease?

Chickenpox?

Hepatitis C?

Digestive problems?

Depression or other mental health problem?

Surgeries?

Lupus?

Scleroderma?

Other conditions?

Have you ever been vaccinated for:

Measles, mumps, rubella?

Hepatitis B?

Chickenpox?

NOTES: _____

WOMEN'S HEALTH

Do you have any problems with your menstrual cycle?

How many times have you been pregnant?

What was/were the outcomes(s)? _____

Did you have difficulty getting pregnant last time?

Have you been treated for infertility?

Have you had surgery on your uterus, cervix, ovaries or tubes?

Did your mother take the hormone DES during pregnancy?

Have you ever had HPV, genital warts or chlamydia?

Have you ever been treated for a sexually transmitted infection (genital herpes, gonorrhea, syphilis, HIV/AIDS, other)? List: _____

NOTES: _____

GENETICS

Does your family have a history of _____ or _____ your partner's family

Hemophilia? _____

Other bleeding disorders? _____

Tay-Sachs disease? _____

Blood diseases (sickle cell, thalassemia, other)? _____

Muscular dystrophy? _____

Down syndrome/Mental retardation? _____

Cystic fibrosis? _____

Birth defects (spine/heart/kidney)? _____

Your ethnic background is: _____

Your partner's ethnic background is: _____

NOTES: _____

HOME ENVIRONMENT

Do you feel emotionally supported at home?

Do you have help from relatives or friends if needed?

Do you feel you have serious money/financial worries?

Are you in a stable relationship?

Do you feel safe at home?

Does anyone threaten or physically hurt you?

Do you have pets (cats, rodents, exotic animals)? List: _____

Do you have any contact with soil, cat litter or sandboxes?

Baby preparation (if planning pregnancy):

Do you have a place for a baby to sleep?

Do you need any baby items?

NOTES: _____

OTHER

IS THERE ANYTHING ELSE YOU'D LIKE ME TO KNOW?

ARE THERE ANY QUESTIONS YOU'D LIKE TO ASK ME?

Summary

Healthy Women
Have
Healthy Babies



The Goal of Preconception Care....

