

Recommendations for Preconception Care

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Every woman of reproductive age who is capable of becoming pregnant is a candidate for preconception care, regardless of whether she is planning to conceive. Preconception care is aimed at identifying and modifying biomedical, behavioral, and social risks through preventive and management interventions. Key components include risk assessment, health promotion, and medical and psychosocial interventions. Patients should formulate a reproductive life plan that outlines personal goals about becoming pregnant based on the patient's values and resources. Preconception care can be provided in the primary care setting and through activities linked to schools, workplaces, and the community. (Am Fam Physician 2007;76:397-400. Copyright © 2007 American Academy of Family Physicians.)

► **Patient information:**
A handout on this topic is available at <http://familydoctor.org/076.xml>.

For more than two decades, prenatal care has been a cornerstone for improving pregnancy outcomes in the United States. In recent years, however, limits to prenatal care and the importance of maternal health before pregnancy have been increasingly recognized.¹ The Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry recently released recommendations to promote preconception care in the United States.² The recommendations are summarized in *Table 1*²; the full guideline is available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm>.

Components of Preconception Care

Every woman of reproductive age who is capable of becoming pregnant is a candidate for preconception care, even if she is not planning to conceive. Men should also receive preconception care, although the components are not as well defined in men as they are in women. The CDC defines preconception care as a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management.²

Several preconception care models have been developed.³⁻⁵ The American Academy of Pediatrics and the American College of Obstetricians and Gynecologists classify the main components of preconception care into four categories: physical assessment, risk screening,

vaccinations, and counseling.⁶ Most components of preconception care (*Table 2*)^{1,3-12} can be addressed in the primary care setting. Checklists, references, continuing education resources, and patient information are available through a number of Web sites (e.g., <http://www.marchofdimes.com/professionals/preconception.asp>, <http://www.cdc.gov/ncbddd/preconception/default.htm>, <http://www.aafp.org/afp/20020615/2507.html>).

Interventions

Targeted interventions have been effective for patients who wish to conceive. Interventions include folic acid supplementation, testing for rubella seronegativity and vaccination if indicated, tight control of pregestational diabetes, careful management of hypothyroidism, and avoidance of teratogenic agents (e.g., isotretinoin [Accutane], warfarin [Coumadin], some antiseizure medications, alcohol, tobacco).¹⁰

By the time pregnant women have their first prenatal visit, it may be too late to prevent some placental development problems or birth defects. Organogenesis begins early in pregnancy; therefore, initiating folic acid supplementation after neural tube closure at six weeks (28 days after conception) has no demonstrated benefit for preventing a neural tube defect.¹³ Placental development begins even earlier, at implantation (seven days after conception). Poor placental development has been linked to preeclampsia and preterm birth¹⁴ and may play a role in fetal programming of chronic diseases later in life.¹⁵

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	Evidence rating	References
Screen for periodontal, urogenital, and sexually transmitted infections as indicated.	C	2
Update immunization with hepatitis B, rubella, varicella, Tdap, human papillomavirus, and influenza vaccines as needed.	C	2, 5
Assess the patient's risk of chromosomal or genetic disorders based on family history, ethnic background, and age; offer cystic fibrosis and other carrier screening as indicated.	C	2, 5
Assess the patient's anthropometric (i.e., body mass index), biochemical (e.g., anemia), clinical, and dietary risks.	C	2, 5
Counsel the patient about possible toxins and exposure to teratogenic agents (e.g., heavy metals, solvents, pesticides, endocrine disruptors, allergens) at home, in the neighborhood, and at work; review Material Safety Data Sheets and consult a local teratology information specialist as needed.	C	2
Screen for depression, anxiety, domestic violence, and major psychosocial stressors.	C	2, 5
Laboratory testing should include a complete blood count; urinalysis; blood type and screen; screening for rubella, syphilis, hepatitis B, human immunodeficiency virus, gonorrhea, chlamydia, and diabetes; and cervical cytology as indicated.	C	2

NOTE: These recommendations are based on Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry recommendations and emerging practice models and, therefore, receive C ratings.

Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis.

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, see page 323 or <http://www.aafp.org/afpsort.xml>.

Table 1. Summary of the CDC/ATSDR Guideline on Preconception Care

Consumer awareness: Increase public awareness about the importance of preconception health behaviors and care services by using information and tools that are appropriate across various age groups, literacy levels (including health literacy), and cultures/languages

Health insurance coverage for women with low incomes: Increase public and private health insurance coverage for women with low incomes to improve access to preventive women's health and pre- and interconception care

Individual responsibility across the life span: Encourage each woman, man, and couple to have a reproductive life plan (i.e., a plan, based on the patient's values and resources, to achieve a set of personal goals about having children)

Interconception care: Use the interconception period to provide additional intensive interventions to women who have had a previous pregnancy that ended in an adverse outcome (e.g., infant death, fetal loss, birth defects, low birth weight, preterm birth)

Interventions for identified risks: Increase the proportion of women who receive interventions as follow-up to preconception risk screening, focusing on high-priority interventions (i.e., those with evidence of effectiveness and the greatest potential impact)

Monitoring improvements: Maximize public health surveillance and related research mechanisms to monitor preconception health

Prepregnancy checkup: As a component of maternity care, offer one prepregnancy visit for couples and persons planning pregnancy

Preventive visits: As a part of primary care visits, provide risk assessment, education, and health promotion counseling to all women of childbearing age

Public health programs and strategies: Integrate components of preconception health care into existing local public health and related programs, including an emphasis on interconception interventions for women with previous adverse pregnancy outcomes

Research: Increase the evidence base and promote the use of the evidence to improve preconception health

NOTE: The items in this table are not prioritized and should be addressed simultaneously.

CDC = Centers for Disease Control and Prevention; ATSDR = Agency for Toxic Substances and Disease Registry.

Information from reference 2.

During early prenatal care, it is often too late to restore allostasis¹⁶ (i.e., the body's ability to maintain stability through change¹⁷). Examples of allostasis include feedback inhibition in the hypothalamic-pituitary-adrenal (HPA) axis to regulate stress response¹⁷ and counterregulation of the immune system by the HPA axis to modulate inflammatory

response.¹⁸ Chronic psychological or biologic stress can wear out these systems. Women who enter pregnancy with worn-out allostatic systems (e.g., dysregulated stress or inflammatory response) may be more susceptible to pregnancy complications, including preterm birth. Therefore, restoring allostasis is an important objective of preconception care.

Table 2. Components of Preconception Care**Risk assessment**

Reproductive life plan: Ask your patient if she plans to have children (or additional children if she is already a mother) and how long she plans to wait until she becomes pregnant; help her develop a plan, based on her values and resources, to achieve those goals

Reproductive history: Review previous adverse pregnancy outcomes (e.g., infant death, fetal loss, birth defects, low birth weight, preterm birth) and assess ongoing biobehavioral risks that could lead to recurrence in a subsequent pregnancy

Medical history: Ask if the patient has a history of conditions that could affect future pregnancies (e.g., rheumatic heart disease, thromboembolism, autoimmune diseases); screen for ongoing chronic conditions such as hypertension and diabetes

Medication use: Review the patient's current medication use; avoid FDA pregnancy category X medications and most category D medications unless potential maternal benefits outweigh fetal risks; review the use of over-the-counter medications, herbs, and supplements

Infections and immunizations: Screen for periodontal, urogenital, and sexually transmitted infections as indicated; update immunization with hepatitis B, rubella, varicella, Tdap, human papillomavirus, and influenza vaccines as needed; counsel the patient about preventing TORCH infections

Genetic screening and family history: Assess the patient's risk of chromosomal or genetic disorders based on family history, ethnic background, and age; offer cystic fibrosis and other carrier screening as indicated; discuss management of known genetic disorders (e.g., phenylketonuria, thrombophilia) before and during pregnancy

Nutritional assessment: Assess the ABCDs of nutrition: anthropometric factors (e.g., BMI), biochemical factors (e.g., anemia), clinical factors, and dietary risks

Substance abuse: Ask the patient about tobacco, alcohol, and drug use; use CAGE⁷ or T-ACE⁸ questionnaires to screen for alcohol and substance abuse

Toxins and teratogenic agents: Counsel the patient about possible toxins and exposure to teratogenic agents at home, in the neighborhood, and in the workplace (e.g., heavy metals, solvents, pesticides, endocrine disruptors, allergens); review Material Safety Data Sheets and consult a local teratology information specialist (http://otispregnancy.org/otis_find_a_tis.asp) as needed

Psychosocial concerns: Screen for depression, anxiety, domestic violence, and major psychosocial stressors

Physical examination: Focus on periodontal, thyroid, heart, breast, and pelvic examinations

Laboratory testing: Testing should include a complete blood count; urinalysis; blood type and screen; and, when indicated, screening for rubella, syphilis, hepatitis B, human immunodeficiency virus, gonorrhea, chlamydia, and diabetes and cervical cytology; consider measuring thyroid-stimulating hormone levels

FDA = U.S. Food and Drug Administration; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis; TORCH =Toxoplasmosis, Other viruses, Rubella, Cytomegaloviruses, Herpes (simplex) viruses; BMI = body mass index; CAGE = Cut down on drinking, Annoyance with criticisms about drinking, Guilt about drinking, and using alcohol as an Eye opener; T-ACE = Tolerance, Annoyance, Cut down, Eye-opener.

Information from references 1, and 3 through 12.

Health promotion

Family planning: Promote family planning based on the patient's reproductive life plan; for women who are not planning to become pregnant, promote effective contraceptive use and discuss emergency contraception

Healthy weight and nutrition: Promote a healthy prepregnancy weight (ideal BMI is 19.8 to 26.0 kg per m²) through exercise and nutrition; discuss macro- and micronutrients, including getting "five-a-day" (i.e., two servings of fruit and three servings of vegetables) and taking a daily multivitamin that contains folic acid

Healthy behaviors: Promote healthy behaviors such as nutrition, exercise, safe sex, effective contraceptive use, dental flossing, and use of preventive health services; discourage risky behaviors such as douching, not wearing a seatbelt, smoking (e.g., use the five A's [Ask, Advise, Assess, Assist, Arrange] for smoking cessation⁹), and alcohol and substance abuse

Stress resilience: Promote nutrition, exercise, sufficient sleep, and relaxation techniques; address ongoing stressors (e.g., domestic violence); identify resources to help the patient develop problem-solving and conflict-resolution skills, positive mental health, and strong relationships

Healthy environments: Discuss household, neighborhood, and occupational exposures to heavy metals, organic solvents, pesticides, endocrine disruptors, and allergens; give practical tips such as how to avoid exposures

Interconception care: Promote breastfeeding, placing infants on their backs to sleep to reduce the risk of sudden infant death syndrome, positive parenting behaviors, and the reduction of ongoing biobehavioral risks¹

Medical and psychosocial interventions for identified risks

Interventions should address identified medical and psychosocial risks; examples include folic acid supplementation, testing for rubella seronegativity and vaccination if indicated, tight control of pregestational diabetes, careful management of hypothyroidism, and avoidance of teratogenic agents (e.g., isotretinoin [Accutane], warfarin [Coumadin], some antiseizure medications, alcohol, tobacco)¹⁰

In addition to targeting optimal health outcomes for the baby, preconception care should promote the mother's health, regardless of her plans for future pregnancies.² Evidence suggests that pregnancy complications such as preeclampsia or preterm birth may increase the mother's risk of chronic diseases later in life.¹⁹

Implementation

Preconception care includes more than a single prepregnancy office visit and less than all well-woman examinations²⁰; however, there is no consensus on this. For some physicians, preconception care is a single prepregnancy checkup a few months before the patient attempts to conceive. A single visit, however,

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may not be sufficient to address every preconception issue, and approximately one half of all pregnancies in the United States that are unintended at conception will be missed during the visit.²¹ For other physicians, preconception care includes all well-woman examinations and primary care visits from prepubescence to menopause.²² In practice, however, such frequent assessments may not be feasible or reimbursable, and some components (e.g., genetic and laboratory testing) may not be indicated or appropriate at every visit.

Physicians can start by asking female patients at every visit about their reproductive life plan²³ (i.e., a plan, based on the patient's values and resources, to achieve a set of personal goals about having children).² The questions should include whether the patient intends to have a child (or additional children if she is already a mother) and her timeline for having children.²⁴ If the patient plans to have a child within the next year or two, she and her partner should return for a full assessment.

Follow-up visits should be scheduled according to the patient's individual risks. If the patient does not plan to become pregnant in the next one to two years or does not plan to have children, she should continue to receive well-woman examinations, which include routinely addressing her family planning needs and updating her reproductive life plan.

A survey of family physicians and obstetricians/gynecologists found that only one in six had provided preconception care to most women for whom they provided prenatal care.²⁵ In addition to family physicians and obstetricians/gynecologists, other health care professionals (e.g., health educators, social workers) should be prepared to contribute to comprehensive preconception care. Preconception health can be promoted at workplaces, at schools, and in the community.

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