Prenatal Preventive Services

CLINICAL PRACTICE GUIDELINES

KAISER PERMANENTE®
Medical Care Program,
Southern California

These recommendations are intended to assist obstetricians, nurse practitioners, nurse midwives, and health educators in providing basic prenatal services for all pregnant women. These recommendations are consistent with evidence-based guidelines developed by the U.S. Preventive Services Task Force (USPSTF), the American College of Obstetrics and Gynecologists (ACOG), the American Academy of Pediatrics (AAP), and the CDC Advisory Committee on Immunization Practices, except where noted.

Background

A consistent program of prenatal health care is recommended for all pregnant women to identify potential risk factors, provide appropriate preventive care, and promote positive practices.

Comprehensive prenatal care ideally begins with routine visits to a physician or other health care professional prior to conception. However, it is often the case that health care professionals encounter women during the first trimester of pregnancy, without benefit of preconception counseling.

This guideline focuses on the core elements of health care applicable to all pregnant women from the first postconception visit to childbirth, and does not assume that preconception care has been provided. In addition, women who have significant pregnancy risk factors may require additional care beyond the scope of this guideline.

Core Elements of Prenatal Care

This guideline organizes prenatal health care visits by trimester of pregnancy and type of assessment, exam or test to be performed (see Table 2). These services can be provided by health care professionals in an outpatient office setting, in classes, or by individual counseling, and involve physicians, nurse practitioners, nurse midwives, and health educators.

Each prenatal care visit includes four core elements:

- patient education
- maternal health and risk factor assessment
- fetal health and risk factor assessment
- laboratory testing and immunizations (Please refer to the Centers for Disease Control and Prevention (CDC) chart on pg. 4)

Patient Education

Prenatal education is designed to inform women about the developmental stages of pregnancy, the physical and emotional changes associated with each stage, and to promote positive practices.

- First trimester (1-12 weeks): Education focuses primarily on maternal physical and mental health during pregnancy. This includes information on medical and genetic risk factors; the importance of good nutrition, vitamin supplementation (see Table 1), exercise during pregnancy, healthy weight gain, avoidance of smoking and substance use; and appropriate self care. Prenatal classes and smoking cessation programs (if indicated), are recommended. An overview of prenatal care visits and lab tests is also presented.
- Second trimester (13-28 weeks): Visits focus on the significance of the results of lab tests, fetal activity, preterm labor counseling, breastfeeding information, and promotion of maternal physical and psychological well-being. Educational messages from the first trimester visits are reinforced.
- Third trimester (29-41 weeks): Education focuses on fetal activity and detecting signs of medical problems (e.g., hypertension, preterm labor, pain, etc.). In addition, preparation for childbirth and infant care is emphasized. Contraception counseling for post-pregnancy is also recommended when appropriate.

The remaining three core elements of prenatal care (maternal health and risk factor assessment, fetal health and risk factor assessment, and laboratory testing and immunizations) and recommended screening and preventive measures are addressed in Table 2 and the CDC immunization schedule on pg. 4. All women should also be questioned about their history of herpes. Routine screening for bacterial vaginosis is not recommended.

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http://cl.kp.org/pkc/scal/cpg/cpg/cpgs.html

Table 1: Dietary Supplements and Recommended Daily Dietary Allowances (RDA) for Adult Pregnant Women*

Supplement	Recommended Dose	Recommendations
Calcium	1,000–1,300 mg per day	Routine supplementation with calcium to prevent pre-eclampsia is not recommended. However, calcium supplementation may be beneficial for women at high risk for gestational hypertension or in communities with low dietary calcium intake. Good food sources include milk and milk products; sardines and salmon; collard, kale, mustard, and turnip greens.
Folic Acid	0.4–0.8 mg per day (4 mg for secondary prevention)	Supplementation should begin at least one month before conception. RDA is 600 µg of dietary folate equivalents, which can be found in green leafy vegetables, orange juice, strawberries, liver, legume, and nuts.
Iron	30 mg per day	Pregnant women should be screened for anemia (hemoglobin, hematocrit) and treated, if necessary. Foods rich in iron include meat, liver, dried beans and peas, iron-fortified cereals, and prune juice.
Vitamin A	5,000 IU per day	Pregnant women should limit vitamin A intake. Excessive vitamin A (>10,000 IU per day) may be associated with fetal malformations. Use of beta carotene, the precursor of vitamin A found in fruits and vegetables, has not been shown to produce vitamin A toxicity. Dietary intake of vitamin A (e.g. green leafy vegetables, milk) in the US appears to be adequate for most pregnant women. Therefore, routine supplementation during pregnancy is not recommended.
Vitamin D**	5 µg per day	Vitamin D deficiency is rare but has been linked to adverse fetal and maternal outcomes. Supplementation should be considered for women with limited sunlight exposure. However, dietary vitamin D is found in fortified milk and other dairy products.

Source: Evidence-based guidelines developed by ACOG and AAFP.

*Each pregnant woman should be provided with information about balanced nutrition as well as ideal caloric intake and weight gain. Maternal nutrition can contribute positively to maintaining or improving the woman's health as well as to the delivery of a healthy term newborn. The following have demonstrated no benefit for routine nutritional supplementation: multivitamins, amino acids/protein, iron, magnesium, pyridoxine, and zinc.

**Recommendations measured as Adequate Intake (AI) instead of Recommended Daily Dietary Allowance (RDA). An AI is set instead of an RDA if insufficient evidence is available to determine an RDA. The AI is based on observed or experimentally determined estimates of average nutrient intake by a group (or groups) of healthy people.

Table 2: Prenatal Preventive Services, By Trimester

Maternal Assessment	Fetal Assessment	Lab Tests/Immunizations
FIRST TRIMESTER (First 12 Weeks)		
PRECONCEPTION VISIT OR BY FIRST PRENATAL VISIT History: • Family • Medical (including immunizations) • Obstetric • Genetic • Medication (current) • Nutrition/supplements • Environmental exposure Risk Assessment: • Depression • Physical/emotional abuse • Sexual behavior (high risk) • Stress • Smoking • Substance use/abuse (alcohol & drugs) • Gestational diabetes risk • Preterm labor • Thromboembolism risk • Obesity screening • Nutrition, exercise and healthy weight gain counseling • Skin cancer counseling, if high risk[8]	6–12 WEEKS • Confirm gestational age • Fetal heart activity	EACH VISIT • Urine screening (protein/glucose) • Weight • Blood pressure ONCE BY WEEK 12 • Complete Blood Count (CBC) (+ hemoglobinopathy, based on CBC results) • Urine culture (bacteriuria) • D(Rh) typing, antibody screen • Hepatitis B surface Antigen • Hepatitis C testing, if high risk[3] • HIV testing offered • Cervical cancer screen for age 21 years or older, if due[1] • Syphilis screen (RPR/VDRL) • Rubella and Varicella[2] • Chlamydia and gonorrhea screen, as indicated • Glucose tolerance testing • Hemoglobin A1C testing GENETIC SCREENING • First trimester screening for Down Syndrome • Sickle cell, Tay Sachs, or other testing (as indicated) IMMUNIZATIONS[4] • Tetanus booster, if indicated • Influenza vaccine, if indicated • Hepatitis B vaccine, if indicated • Hepatitis A vaccine, if indicated
SECOND TRIMESTER (Weeks 13-28)		
EACH VISIT Risk Assessment: • Preterm labor • Labor signs and symptoms • Gestational diabetes risk • Physical/emotional abuse • Skin cancer counseling, if high risk[8] • Obesity screening • Nutrition, exercise and healthy weight gain counseling	EACH VISIT • Uterine growth • Fetal heart tone • Fetal activity (after 28 weeks)	EACH VISIT • Urine screening (protein/glucose) • Weight • Blood pressure WEEKS 15-20 • Second trimester screening tests, as indicated • Amniocentesis, as indicated BEFORE WEEK 20 • Anatomic screening[3] WEEKS 24-28 • Repeat CBC • Repeat D(Rh) typing and antibody screen, as indicated • Repeat Syphilis, Hep B surface Antigen and other STD testing, if high risk[4] • Glucose tolerance testing[7] WEEK 28 • RhoGAM™ if Rh negative IMMUNIZATIONS[4] • Influenza vaccine, if indicated • Tdap vaccing, given at 27-36 weeks
THIRD TRIMESTER (Weeks 29-41)		
EACH VISIT Risk Assessment: • Preterm labor counseling • Labor signs and symptoms • Signs and symptoms of pregnancy induced hypertension (PIH) • Physical/emotional abuse • Obesity screening • Nutrition, exercise and healthy weight gain counseling • Skin cancer counseling, if high risk[8] • Contraception counseling for post-pregnancy when appropriate	EACH VISIT • Uterine growth • Fetal heart tone • Fetal activity • Fetal position at ≥35 weeks	EACH VISIT • Urine screening (protein/glucose) • Weight • Blood pressure WEEKS 29-41 • Cervical exam, as indicated (can be given as early as week 24) WEEKS 35-37 • Group B Strep cultures IMMUNIZATIONS • Influenza vaccine, if indicated • Tdap vaccing, given at 27-36 weeks

[1]Please refer to KP Southern California's Preventive Care Services for Adults for additional information.
[2]USPSTF suggests serologic testing for varicella and rubella susceptibility in healthy adults with no history of infection or previous vaccination. ACOG states that varicella immune globulin "can be considered for healthy pregnant women within 96 hours of exposure to protect against maternal infection." USPSTF and ACOG recommend against rubella vaccination during pregnancy.
[3]USPSTF considered risk factors for HCV infection include previous or current injection drug use, receiving a blood transfusion before 1992, long-term hemodialysis, being born to an HCV-infected mother, incarceration, intransal drug use, getting an unregulated tattoo, and other percutaneous exposure.
[4]Please refer to the Center for Disease and Prevention Chart for immunization details.
[5]ACOG recommends ultrasound in the second trimester only when performed for a specific medical condition, not for routine screening.
[6]Repeat screening should be considered for women at increased risk (sexual practices which place patient at increased risk for STDs, substance abuse, or increased likelihood of exposure to infectious disease).
[7]There is no direct evidence, but some indirect evidence, suggestive of a benefit of screening for gestational diabetes mellitus (GDM) in average-risk pregnant women; the decision to screen is based on the recommendations of the SCPMG Regional Perinatal Committee and ACOG.
[8]The USPSTF recommends counseling women with fair skin to reduce their risk of skin cancer by minimizing exposure to ultraviolet radiation. Sun-protective behaviors include the use of broad-spectrum sunscreen (>15 SPF), wearing hats or other shade-protective clothing, avoiding the outdoors during mid-day hours (10 am to 3 pm), and avoiding the use of indoor tanning. Please refer to KP Southern California's Preventive Care Services for Adults for additional information.

Summary of Maternal Immunization Recommendations

Resources for health care professionals

Vaccines help keep your pregnant patients and their growing families healthy.

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Vaccine*	Indicated During Every Pregnacy	May Be Given During Pregnancy in Certain Populations	Contraindicated During Pregnancy	Can Be Initiated Postpartum or When Breastfeeding or Both
Inactivated influenza	X†,1,2			X‡
Tetanus toxoid, reduced diptheria toxoid and acellular pertussis (Tdap)	X†,3,4			X‡
Pneumococcal vaccines		X§,5,6		X§,5,6
Meningococcal conjugate (MenACWY) and Meningococcal serogroup B		X‖,7		X‖,7
Hepatitis A		X¶,8		X¶,8
Hepatitis B		X#,9,10		X#,9,10
Human papillomavirus (HPV)**				X**,11,12
Measles, mumps, and rubella			X††,13,14	X††
Varicella			X††,13,15,16	X††

Reprinted from Maternal immunization. ACOG Committee Opinion No. 741. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018;131:e214–7

*An "X" indicates that the vaccine can be given in this window. See the corresponding numbered footnote for details.

† Inactivated influenza vaccination can be given in any trimester and should be given with each influenza season as soon as the vaccine is available. The Tdap vaccine is given at 27–36 weeks of gestation in each pregnancy, preferably as early in the 27–36-week window as possible. The Tdap vaccine should be given during each pregnancy in order to boost the maternal immune response and maximize the passive antibody transfer to the newborn. Women who did not receive Tdap during pregnancy (and have never received the Tdap vaccine) should be immunized once in the immediate postpartum period.[1–3]

‡ Vaccination during every pregnancy is preferred over vaccination during the postpartum period to ensure antibody transfer to the newborn.[3,4]

§ There are two pneumococcal vaccines: 1) the 23-valent pneumococcal polysaccharide vaccine (PPSV23) is recommended in reproductive-age women who have heart disease,lung disease, sickle cell disease, and diabetes as well as other chronic illnesses; 2) the 13-valent pneumococcal vaccine (PCV13) is recommended for reproductive-aged women with certain immunocompromised conditions, including human immunodeficiency virus (HIV) infection and asplenia. The PCV13 vaccine should be deferred in pregnant women, unless the woman is at increased risk of pneumococcal disease and after consultation with her health care provider the benefits of vaccination are considered to outweigh the potential risks.[5,6]

‖ Quadrivalent conjugate meningococcal vaccine is routinely recommended for adolescents aged 11–18 years, along with individuals with HIV infection, complement component deficiency (including eculizumab use), functional or anatomic asplenia (including sickle cell disease), exposure during a meningococcal disease outbreak, travel to endemic or hyperendemic areas, or work as a microbiologist routinely exposed to *Neisseria meningitidis*. If indicated, pregnancy should not preclude vaccination. The serogroup B vaccine should be deferred in pregnant women, unless the woman is at increased risk of serogroup B meningococcal disease[7] and, after consultation with her health care provider, the benefits of vaccination are considered to outweigh the potential risks.[7]

¶ Pregnant women with any of the conditions that increase the risk of either acquiring or having a severe outcome from hepatitis A infection (eg, having chronic liver disease, clotting-factor disorders, traveling, using injection and noninjection drugs, and working with nonhuman primates) should be vaccinated during pregnancy if not previously vaccinated. Pregnant women at risk of hepatitis A infection during pregnancy should also be counseled concerning all options to prevent hepatitis A infection. Any woman who wants to be protected from hepatitis A or has an indication for use may receive the vaccine during pregnancy or during the postpartum period.[8]

Hepatitis B vaccination is recommended for women who are identified as being at risk of hepatitis B infection during pregnancy (eg, women who have household contacts or sex partners who are hepatitis B surface antigen–positive; have more than one sex partner during the previous 6 months; have been evaluated or treated for a sexually transmitted infection; are current or recent injection-drug users; have chronic liver disease; have HIV infection; or have traveled to certain countries). Any woman who wants to be protected from hepatitis B or has an indication for use may receive the vaccine during pregnancy and the postpartum period. Pregnant women at risk of hepatitis B infection during pregnancy should be counseled concerning other methods to prevent hepatitis B infection.[1,9]

** The HPV vaccination in pregnancy is not recommended, however, inadvertent HPV vaccination during pregnancy is not associated with adverse events for the woman or her fetus. The HPV vaccine can be given to postpartum and breastfeeding women. The HPV vaccine should be administered to women through age 26 years who were not previously vaccinated. Vaccination timing and number of doses should follow Centers for Disease Control and Prevention and American College of Obstetricians and Gynecologists' guidance.[11,12]

†† Live attenuated vaccines including, measles–mumps–rubella, varicella, and live-attenuated influenza vaccine are contraindicated for pregnant women. If indicated (ie, among seronegative women), the measles–mumps–rubella vaccine and the varicella vaccine should be given during the postpartum period. Inadvertent administration during pregnancy has not been associated with congenital rubella or congenital varicella syndromes.[13–16]

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12. Petrosky E, Bocchini JA Jr, Hariri S, Chesson H, Curtis CR, Saraiya M, et al. Use of 9-valent human papillomavirus (HPV) vaccine: updated HPV vaccination recommendations of the advisory committee on immunization practices. MMWR Morb Mortal Wkly Rep. 2015;64:300–4.

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