Evidence-Based Prenatal Care: Part I. General Prenatal Care and Counseling Issues

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Effective prenatal care should integrate the best available evidence into a model of shared decision making. Pregnant women should be counseled about the risks of smoking and alcohol and drug use. Structured educational programs to promote breastfeeding are effective. Routine fetal heart auscultation, urinalysis, and assessment of maternal weight, blood pressure, and fundal height generally are recommended, although the evidence for these interventions is variable. Women should be offered ABO and Rh blood typing and screening for anemia during the first prenatal visit. Genetic counseling and testing should be offered to couples with a family history of genetic disorders, a previously affected fetus or child, or a history of recurrent miscarriage. All women should be offered prenatal serum marker screening for neural tube defects and aneuploidy. Women at increased risk for aneuploidy should be offered amniocentesis or chorionic villus sampling. Counseling about the limitations and risks of these tests, as well as their psychologic implications, is necessary. Folic acid supplementation beginning in the preconception period reduces the incidence of neural tube defects. There is limited evidence that routine use of other dietary supplements may improve outcomes for the mother and infant. (Am Fam Physician 2005;71:1307-16, 1321-2. Copyright© 2005 American Academy of Family Physicians.)

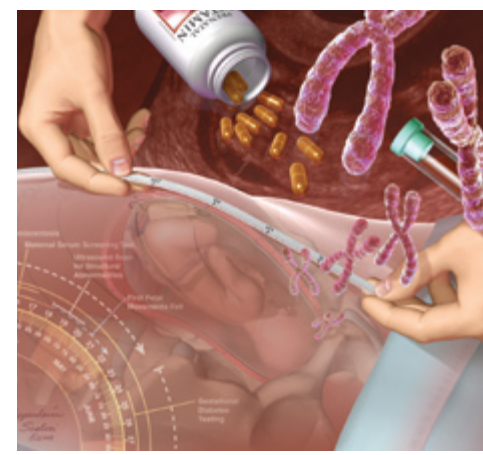

ILLUSTRATION BY BERT OPPENHEIM AND CHRIS SCALICI

This is part I of a two-part article on prenatal care. Part II, "Third-Trimester Care and Prevention of Infectious Diseases," will appear in the April 15, 2005, issue of *AFP*.

▶ See editorial on page 1264.

▶ **Patient information:** A handout on staying healthy during pregnancy, written by the authors of this article, is provided on page 1321.

Pregnancy can be enhanced by a coordinated program of prenatal medical care and psychosocial support.[1-3] A systematic approach should integrate the best evidence into a model of informed, shared decision making. Care ideally begins before conception and includes preventive care, counseling, and screening for risks to maternal and fetal health. A pregnant woman should understand what screening tests are meant to detect, how they are conducted, possible risks to her and her fetus, the type of results that will be reported (e.g., probability, risk), the likelihood of false-positive or false-negative results, and the choices she will face once results are obtained.[2] Reminder systems such as prenatal forms or checklists embedded in the process of care increase the likelihood that physicians will put clinical evidence into practice.[4-6] Part I of this two-part article focuses on general prenatal care, counseling issues, nutrition, and screening for genetic conditions. Part II[7] will focus on third-trimester care and prevention of infectious diseases. The guidelines discussed in both parts of this article are summarized in a memory aid, the Maternity Care Calendar and Guidelines, available online at http://www.maternitycarecalendar.com.[8,9]

Providing Prenatal Care

Women in developed countries typically attend regular prenatal visits, usually seven to 11 times per pregnancy.[2,10-12] A recent meta-analysis found that reducing the number of prenatal visits did not lead to increased adverse outcomes for the mother or infant; however, women were less satisfied with the reduced-visit schedule.[13] Caregiver continuity during the antenatal period has been associated with reduced interventions in labor and improved maternal satisfaction.[14,15] Care provided by midwives, family physicians, and obstetricians was found to be equally effective, although women were slightly more satisfied with care from midwives and family physicians.[13]

TABLE 1
Counseling Issues in Pregnancy

Issue	*Guideline*	*Label*	*Comments*
Air travel	Air travel generally is safe for pregnant women until four weeks before the expected date of delivery.[17]	C	Consider the availability of medical resources at the destination.
	Lengthy trips are associated with increased risk of venous thrombosis.[2]	C	Detailed information is available online at http://www.cdc.gov/travel/pregnant.htm.
Breastfeeding	Breastfeeding is the best feeding method for most infants. Breastfeeding contraindications include maternal HIV infection, chemical dependency, and use of certain medications.[18]	B	It is not known how advice from caregivers to new or expectant mothers affects breastfeeding success.[18]
	Structured behavior counseling and breastfeeding-education programs may increase breastfeeding success.[18,19]	B	
Exercise	Pregnant women should avoid activities that put them at risk for falls or abdominal injuries.[20]	C	At least 30 minutes of moderate exercise on most days of the week is a reasonable activity level for most pregnant women.[20]
	Scuba diving during pregnancy is not recommended.[20]	C	
Hair treatments	Although hair dyes and treatments have not been associated clearly with fetal malformation, exposure to these treatments should be avoided during early pregnancy.[21]	C	——
Hot tubs and saunas	Hot tubs and saunas probably should be avoided during the first trimester of pregnancy.[22,23]	B	——
	Maternal heat exposure during early pregnancy has been associated with neural tube defects and miscarriage.[22,23]	B	
Labor and delivery	All pregnant women should be counseled about what to do when their membranes rupture, what to expect when labor begins, strategies to manage pain, and the value of labor support.[1]	C	——
Medications: prescription, over-the-counter, and herbal remedies	Few medications have been proven safe for use in pregnant women, particularly during the first trimester of pregnancy.[2]	C	The risks associated with individual medications should be reviewed based on the patient's needs.[24]
Sex	Sexual intercourse during pregnancy is not associated with adverse outcomes.[2]	B	——
Substance use: alcohol	All pregnant women should be screened for alcohol misuse.[25]	B	There is good evidence that counseling is an effective intervention in decreasing alcohol consumption in pregnant women and morbidity in their infants.[26]
	There is no known safe amount of alcohol consumption during pregnancy. Abstinence is recommended.[2,25]	B	
Substance use: illicit drugs	All pregnant women should be informed of the potential adverse effects of drug use on the fetus.[27]	C	Women who use illicit drugs often require specialized interventions, ideally within a harm-reduction framework.
	Admission to a detoxification unit may be indicated. Methadone therapy in opiate-addicted women may be life-saving.[3]	C	
Substance use: smoking	All pregnant women should be screened for tobacco use, and pregnancy-tailored counseling should be provided to smokers.[2,28]	A	Smoking-cessation counseling and multicomponent strategies are effective in decreasing the incidence of low-birth-weight infants.[2,10,26,28]
Workplace	Some working conditions, such as prolonged standing and exposure to certain chemicals, are associated with pregnancy complications.[10]	B	Employment is associated with favorable demographic and behavioral characteristics, and generally is not associated with adverse pregnancy outcomes.[10]

HIV = human immunodeficiency virus.

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, opinion, or case series. See page 1245 for more information.

Information from references 1 through 3, 10, and 17 through 28.

TABLE 2
Recommendations for Routine Prenatal Care

Examination component	*Recommendation*	*Label*	*Comments*
Abdominal palpation	Abdominal palpation should be used to assess fetal presentation beginning at 36 weeks' gestation.[34,35]	B	Abdominal palpation should not be done before 36 weeks' gestation because of potential inaccuracies and discomfort to the patient.
Blood pressure measurement	It is not known how often blood pressure should be measured, but most guidelines recommend measurement at each antenatal visit.[27]	C	Further research is required to determine how often blood pressure should be measured.
Evaluation for edema	Edema occurs in 80 percent of pregnant women. It lacks specificity and sensitivity for the diagnosis of preeclampsia.[36]	C	Edema is defined as greater than 1+ pitting edema after 12 hours of bed rest, or weight gain of 2.3 kg (5 lb) in one week.
Fetal heart tones	Auscultation for fetal heart tones is recommended at each antenatal visit. Heart tones confirm a viable fetus, but there is no evidence of other clinical or predictive value.[10,33]	C	It is thought that fetal heart tone auscultation provides psychologic reassurance to the mother, but this potential benefit has not been studied.
Fetal movement counts	Routine fetal movement counting should not be performed.[37,38]	A	——
Symphysis fundus height measurement	Symphysis fundus height should be measured at each antenatal visit. Plotting the measurement on a graph is suggested for monitoring purposes.[39-42]	B	Measurement of the symphysis fundus height is subject to interobserver and intraobserver error. It is a simple, inexpensive test.
Urinalysis	Dipstick urinalysis does not detect proteinuria reliably in patients with early preeclampsia; measurement of 24-hour urinary protein excretion is the gold standard but is not always practical. Trace glycosuria also is unreliable, although higher concentrations may be useful.[43-45]	C	Some guidelines have encouraged discontinuation of dipstick urinalysis; others retain this test as part of the routine antenatal visit.
Weight measurement	Maternal height and weight measurements should be made at the first antenatal visit to determine body mass index, which is the basis for recommended weight gain in pregnancy.[46-49]	B	Patients who are underweight or overweight have known risks. Weight gain is not associated with pregnancy-induced hypertension.
	Maternal weight should be measured at each antenatal visit.[46-49]	C	

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Information from references 10, 27, and 33 through 49.

Prenatal Examinations

When pregnancy is confirmed, prenatal care plans, including the choice of caregiver, must be discussed. The initial visit should occur during the first trimester, and more than one visit may be necessary to cover all pertinent information.[2] The estimated date of delivery (EDD) should be calculated by accurate determination of the last menstrual period (LMP). Accurate dating is important for timing screening tests and interventions, and for optimal management of complications. Some research indicates that early ultrasonography is more accurate than LMP at determining gestational age, and that it should be used routinely to determine EDD and reduce the need for labor induction.[2,16] This approach should be considered if there is uncertainty about the LMP.

The first 12 weeks of pregnancy are a time of organogenesis and heightened fetal vulnerability to teratogens; counseling about risk behaviors is appropriate. Issues to be discussed in early pregnancy are outlined in *Table 1*.[1-3,10,17-28]

A history and directed physical examination should be performed to detect conditions associated with increased maternal and perinatal morbidity and mortality. The first prenatal examination provides an opportunity for cervical cancer screening with a Papanicolaou (Pap) test in women who have not been screened recently. However, Pap tests performed in pregnant women may be less reliable.[3,29] Ectopic pregnancy should be considered if risk factors, abdominal pain, or bleeding are present. Spontaneous pregnancy loss, which occurs in 10 to 15 percent of all clinically recognized pregnancies, also should be considered.[30,31]

The clinical components of routine prenatal visits are controversial.[32,33] Most guidelines recommend routine assessment with fundal height and maternal weight and blood pressure measurements, fetal heart auscultation, urine testing for protein and glucose, and questions about fetal movement. The evidence supporting these practices is variable *(Table 2)*.[10,27,33-49]

Prenatal Education

Education is an important component of prenatal care, particularly for women who are pregnant for the first time. Information about physiologic changes that occur during pregnancy and preparation for the birthing process are key themes around which to discuss care issues and choices such as breastfeeding.[2,10]

Domestic Violence

Domestic violence affects a significant number of pregnant women and may put the fetus at risk.[50-52] Evidence from recent studies shows that integrating a standardized screening protocol into routine history-taking procedures increases identification, documentation, and referral for intimate partner violence.[53] However, there is insufficient evidence that screening and early intervention result in improved health outcomes for the mother or baby.[54-56] Nonetheless, some authors recommend routine screening for domestic violence because of patient acceptance of screening, minimal cost, low risks, and significant potential benefit.[1,10] The following standardized screening questions have a sensitivity of 65 to 70 percent and a specificity of 80 to 85 percent[57,58]: (1) Have you been hit, kicked, or otherwise hurt by someone within the past year?; (2) Do you feel safe in your current relationship?; and (3) Is there a partner from a previous relationship who is making you feel unsafe now?

Integrating a standardized screening protocol into routine history-taking procedures increases identification, documentation, and referral for intimate partner violence.

Blood Typing

Rh and ABO blood typing should be performed at the first prenatal visit, as well as a screening test for irregular red blood cell antibodies.[27] Rh_oD immune globulin (Rhogam) is recommended for all nonsensitized Rh-negative women at 28 weeks' gestation (300 mcg) and within 72 hours after delivery of an Rh-positive infant (120 to 300 mcg).[59,60] A Kleihauer-Betke or rosette test, for fetomaternal hemorrhage in excess of that covered by the standard dose of Rh_oD immune globulin, is recommended after delivery of an Rh-positive infant.[59,60] Nonsensitized, Rh-negative women also should be offered a dose of Rh_oD immune globulin after spontaneous or induced abortion, ectopic pregnancy termination, chorionic villus sampling (CVS), amniocentesis, cordocentesis, external cephalic version, abdominal trauma, and second- or third-trimester bleeding.[59,60] Administration of Rh_oD immune globulin can be considered before 12 weeks' gestation in women with a threatened abortion and live embryo, but Rh alloimmunization is rare.[59,60] Written informed consent is recommended for use of Rh_oD immune globulin because it is a blood product.

Genetic Screening

Couples should be questioned about a family history of genetic disorders, a previous fetus or child who was affected by a genetic disorder, or a history of recurrent miscarriage. Genetic counseling should be offered to couples who did not receive it before conception. Patients who belong to an ethnic group with an increased incidence of a recessive condition should be offered disease-specific screening as early in pregnancy as possible if they were not tested before conception *(Table 3)*.

All pregnant women should be offered serum marker screening for neural tube defects and trisomies 21 and 18.[2,10,27,61] Most physicians use the mid-trimester maternal serum screen, which measures human chorionic gonadotropin (hCG), unconjugated estriol, and α-fetoprotein levels at 15 to 20 weeks' gestation (optimal timing is 16 to 18 weeks' gestation).[10,62] The maternal serum screen is approximately 65 percent sensitive for detecting aneuploidy and 95 percent specific.[63] In some centers, fetal nuchal translucency can be measured

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TABLE 3
Disease-Specific Genetic Screening

Disease	*Risk groups*	*Carrier frequency*	*Test*
Cystic fibrosis	Ashkenazi Jews Caucasians	1 in 25 to 30	Molecular diagnostic testing*: standardized screening panel of 25 common mutations of the CFTR gene
Tay-Sachs disease†	Ashkenazi Jews Cajuns French Canadians in Eastern Quebec	1 in 20 to 30	Serum hexosaminidase-A levels in men and nonpregnant women WBC hexosaminidase-A levels in pregnant women Molecular diagnostic testing is available in some centers.
Canavan's disease†	Ashkenazi Jews	1 in 40	Molecular diagnostic testing (not available in all centers)
α- and β-thalassemia	Africans East Indians Hispanics Mediterraneans Middle Easterners Southeast Asians	1 in 10 to 75	If MCV is less than 80 fL, hemoglobin electrophoresis, ferritin levels, and RBC morphology. DNA analysis may be required to detect α-thalassemia carriers.
Sickle cell anemia	Africans	1 in 11	Hemoglobin electrophoresis to detect hemoglobin S

WBC = white blood cell; MCV = mean cell volume; RBC = red blood cell.

**—In Canada, molecular diagnostic testing is available only to women with a positive family history of cystic fibrosis. It is available to all women in the United States.*

†—*If only one partner is in a high-risk group, he or she can be screened first during the preconception period. If the woman is already pregnant, both partners should be screened simultaneously.*

by ultrasonography combined with maternal serum analyte levels (i.e., free hCG and pregnancy-associated plasma protein A).[64] This testing can be performed at 10 to 14 weeks' gestation. Sensitivity and specificity of these tests is determined by the risk cutoff used (e.g., for trisomy 21, sensitivity is 85.2 percent when specificity is 90.6 percent; at 95 percent specificity, the sensitivity is 78.7 percent).[63,65] An integrated screening protocol using first- and second-trimester markers is being used in some areas.[66] Women should be counseled about the limited sensitivity and specificity of the tests, psychologic implications of a positive test, the potential impact of delivering a child with Down syndrome, risks associated with prenatal diagnosis and second-trimester abortion, and delays inherent in the process.[27,67]

Women at increased risk of aneuploidy should be offered prenatal diagnosis by amniocentesis or CVS.[27,61,62] Persons at increased risk include women who will be older than 35 years at delivery and have a singleton pregnancy (older than 32 years for women pregnant with twins); women carrying a fetus with a major structural anomaly identified by ultrasonography; women with ultrasound markers of aneuploidy (including increased nuchal thickness); women with a previously affected pregnancy; couples with a known translocation, chromosome inversion, or aneuploidy; and women with a positive maternal serum screen.[62] Amniocentesis may be performed after 15 weeks' gestation and is associated with a 0.5 percent risk of spontaneous abortion.[1,62,68] CVS is performed at 10 to 12 weeks' gestation and has a 1.0 to 1.5 percent risk of spontaneous abortion.[1,62] CVS may be associated with transverse limb defects (1 per 3,000 to 1 per 1,000 fetuses).[68] Women undergoing CVS also should be offered maternal serum α-fetoprotein testing for neural tube defects.[1] Women older than 35 years may opt for serum screening and ultrasonography before deciding whether to proceed with amniocentesis.[69] The family physician is in an excellent position to discuss the ethical issues of genetic screening within the context of the patient's values.

Ultrasonography

No evidence directly links improved fetal outcomes with routine ultrasound screening.[10] However, there is good evidence that early ultrasonography (i.e., before 14 weeks' gestation) accurately determines gestational age, decreases the need for labor induction after 41 weeks' gestation, and detects multiple pregnancies.[2] Ultrasonography at 10 to 14 weeks' gestation can measure nuchal translucency as a screening test for Down syndrome. Pregnant women should be offered an ultrasound scan to search for structural anomalies between 18 and 20 weeks' gestation.[2,16] Diagnostic ultrasound exposure has not been proven to harm the mother or fetus, but more research on its risks is needed.[70]

Nutrition and Food Safety

Women should be counseled to eat a well-balanced, varied diet.[1] Caloric requirements increase by 340 to 450 kcal per day in the second and third trimesters.[71] Most guidelines recommend that pregnant women with

a normal body mass index gain 11.5 to 16 kg (approximately 25 to 35 lb) during pregnancy.[1,72] Observational studies have found that antenatal weight gains below the recommended range are associated with low birth weight and preterm birth, and that weight gains above the recommended range are associated with increased risk of macrosomia, cesarean delivery, and postpartum weight retention.[73] However, experimental studies are needed to prove that weight gain outside the recommended range causes poor perinatal outcomes.[73]

Folic acid supplementation from four weeks preconception to 12 weeks' gestation prevents neural tube defects.[74-76] The recommended dosage for primary prevention is 0.4 mg per day. For secondary prevention in women with a previous fetus or child with a neural tube defect, the dosage is 4 mg per day.[2]

Some authorities recommend universal prenatal iron supplementation (27 to 30 mg per day) because the average diet and endogenous iron stores of women are often insufficient to meet the iron requirements of pregnancy, and because iron-deficiency anemia is associated with adverse outcomes, and supplementation appears to be safe.[1,72,77] However, the U.S. Preventive Services Task Force[78] found insufficient evidence to recommend for or against routine iron supplementation in pregnant women.[2,10] All pregnant women should be screened for anemia by hemoglobin or hematocrit levels at the first prenatal visit.[1,2,10,27,77] Specific guidelines for nutrition and supplements are outlined in *Tables 4*[1,10,71,74,75,77-89] *and 5*.[2,83,90-113]

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TABLE 4
Use of Dietary Supplements in Pregnancy

Supplement	*Guidelines*	*Label*	*Outcomes*
Calcium	Recommended daily intake is 1,000 to 1,300 mg per day[1,79] Routine supplementation with calcium to prevent preeclampsia is not recommended.[1] However, calcium supplementation may be beneficial for women at high risk for gestational hypertension or in communities with low dietary calcium intake.[10,80]	A	Calcium supplementation has been shown to decrease blood pressure and preeclampsia, but not perinatal mortality.[80,81]
Folic acid	Supplementation with 0.4 to 0.8 mg of folic acid (4 mg for secondary prevention) should begin at least one month before conception.	A	Supplementation prevents neural tube defects.[74,75]
	RDA (in addition to supplements) is 600 mcg of dietary folate equivalents (e.g., legumes, green leafy vegetables, liver, citrus fruits, whole wheat bread) per day.[82,83]	B	Folate deficiency is associated with low birth weight, congenital cardiac and orofacial cleft anomalies, abruptio placentae, and spontaneous abortion.[71,84]
Iron	Pregnant women should be screened for anemia (hemoglobin, hematocrit) and treated, if necessary.[78]	B	Iron-deficiency anemia is associated with preterm delivery and low birth weight.
	Pregnant women should supplement with 30 mg of iron per day.[1,77]	C	
Vitamin A	Pregnant women in industrialized countries should limit vitamin A intake to less than 5,000 IU per day.*[1]	B	High dietary intake of vitamin A (i.e., more than 10,000 IU per day) is associated with cranial-neural crest defects.[85,86]
Vitamin D	Vitamin D supplementation can be considered in women with limited exposure to sunlight (e.g., northern locations, women in purdah).[10,83] However, evidence on the effects of supplementation is limited.[87]	C	Vitamin D deficiency is rare but has been linked to neonatal hypocalcemia and maternal osteomalacia.[88,89] High doses of vitamin D can be toxic.
	RDA is 5 mcg per day (200 IU per day).[79]		

RDA = recommended dietary allowance.

**—Supervised supplementation may be appropriate in countries with endemic vitamin A deficiency.*

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Information from references 1, 10, 71, 74, 75, and 77 through 89.

TABLE 5
Dietary Guidelines for Pregnant Women

Foods and drinks	*Recommendations*	*Label*	*Risks*
Artificially sweetened foods and drinks	Pregnant women should use caution when consuming foods and drinks containing saccharin.[90]	C	Saccharin is known to cross the placenta and may remain in fetal tissue.
	Aspartame, sucralose, and acesulfame-K probably are safe in pregnant women. Women with phenylketonuria should limit consumption of aspartame.[83,90,91]	C	——
Caffeine-containing drinks	Moderate amounts probably are safe. Some guidelines[83,92,93] recommend limiting consumption to 150 to 300 mg per day.*	B	Observational studies[92,94] show an association between high caffeine consumption and spontaneous abortion and low-birth-weight infants. However, confounding factors such as smoking, alcohol use, nausea, and age cannot be ruled out.[95]
Dairy products	Pregnant women should avoid unpasteurized milk and milk products.[2,96-100]	C	Risk of contamination with Toxoplasma and Listeria based on case reports†
	Pregnant women should avoid soft cheese (e.g., feta, Brie, Camembert, blue-veined cheeses, Mexican queso fresco).[2,96-98]	C	Risk of contamination with Listeria based on case reports†
Delicatessen foods	Pregnant women should avoid delicatessen foods, pâté, and meat spreads.[96-98]	C	Risk of contamination with Listeria based on case reports†
Eggs	Pregnant women should avoid raw eggs (e.g., Caesar salad, eggnog, raw cookie dough).[2,83,101,102]	C	Risk of contamination with Salmonella; salmonellosis can lead to intrauterine sepsis based on case reports.[102]
Fruits and vegetables	Pregnant women should wash all fruits and vegetables before eating them.[2,96,103]	C	Risk of contamination with Toxoplasma and Listeria based on case reports†
	Cutting boards, dishes, utensils, and hands should be washed with hot, soapy water after contact with unwashed fruits and vegetables.[103]	C	Risk of contamination with Toxoplasma based on case reports
Herbal teas	Pregnant women should limit their consumption of herbal tea.[83,104] Teas containing ginger, citrus peel, lemon balm, and rose hips probably are safe in moderation.[91] Pregnant women should avoid teas containing chamomile, licorice, peppermint, or raspberry leaf.[104,105]	C	Few controlled trials have addressed the safety of herbal preparations in pregnant women. Some herbal products are considered unsafe in pregnancy.[83,104,105]
Leftover foods	Leftover foods should be thoroughly reheated before they are eaten.[96]	C	Risk of contamination with Listeria based on case reports†
Meat	Pregnant women should avoid raw or undercooked meat.[2,103,106]	C	Risk of contamination with Toxoplasma based on case reports
	Hot dogs and cold cuts should be reheated until they are steaming hot.[96-98,107]	C	Risk of contamination with Listeria based on case reports†
	Liver and liver products should be eaten in moderation.	C	Excessive consumption could cause vitamin A toxicity.[108]
	Cutting boards, dishes, utensils, and hands should be washed with hot, soapy water after contact with uncooked meat.[103]	C	Risk of contamination with Toxoplasma based on case reports
Seafood	Pregnant women should avoid shark, swordfish, king mackerel, tilefish, and tuna steaks.[109,110] Pregnant women should limit intake of other fish (including canned tuna) to 12 oz (2 to 3 meals) per week.[109]	B	Exposure to high levels of mercury in fish can lead to neurologic abnormalities in women and their infants.[111]
	Pregnant women should avoid refrigerated smoked seafood.[97,98]	C	Risk of contamination with Listeria based on case reports†
	Pregnant women should avoid raw fish and shellfish.[83,101]	C	Risk of contamination with parasites and Norwalk-like viruses based on case reports
	Pregnant women should eat farmed salmon in moderation. Experts recommend eating a variety of fish, rather than one or two kinds.[112]	C	Increased levels of organic pollutants, including polychlorinated biphenyls and dioxins, have been found in farmed salmon.[113]
	Cutting boards, dishes, utensils, and hands should be washed with hot, soapy water after contact with uncooked seafood.[103]	C	Risk of contamination with Toxoplasma based on case reports

**—Average caffeine content: coffee (5 fl oz [148 mL]): 60 mg (instant), 85 mg (percolated), 112 mg (drip); tea (5 fl oz): 30 mg (leaf or bag); soft drinks (12 fl oz [355 mL]): 30 to 48 mg.*

†—Pregnant women have increased susceptibility to listeriosis. Listeriosis can lead to spontaneous abortion, preterm delivery, stillbirth, or serious infection in infants.

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