Section I **Health promotion**

Chapter 1

Preventive health care

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Introduction

Preventive health-care centers on disease prevention and health maintenance. It encompasses routine health assessments of risk factors for the development of diseases, the early diagnosis of diseases, counseling regarding risk factors and disease identification, and other interventions or tests to prevent a health problem. Physical examination, screening tests, health education, and immunization programs are common examples of preventive health care. The common screening tests and recommendations for women are outlined and addressed in this chapter.

The annual examination

Every patient contact can be an opportunity to promote good health, but the annual exam should focus on disease prevention. A multitude of guidelines exist, and the American College of Obstetricians and Gynecologists (ACOG) recommends an annual well-woman visit that includes screening, evaluation, counseling, and immunizations based on age and risk factors (available at www.acog.org/wellwoman).[1] The latest screening guidelines are regularly updated and published on the US Preventive Services Task Force website: www.uspreventiveservicestaskforce.org. The Affordable Care Act (ACA) is intended to help Americans gain access to routine screening services and regular wellness visits. Health plans are required to cover certain preventive services with no cost sharing from the patient.[2] For women these include:

- well-woman exams on an annual basis
- gestational diabetes screening
- HPV DNA testing
- sexually transmitted infection counseling
- HIV screening and counseling
- contraception and contraceptive counseling
- breastfeeding counseling, support, and supplies
- domestic violence screening

Basic well-woman examination

At each well-woman visit, the patient's general health should be assessed along with investigation into risk factors for common and age-associated issues.

The patient's history should include:

medical, surgical, mental, menstrual, and reproductive health
family medical history
use of medications
use of tobacco, alcohol, or drugs
sexual practices, including need for contraception
abuse/neglect/violence
diet and nutrition
exercise and physical activity
assessment of symptoms of age-related issues

The physical examination should include:

height
weight
BMI calculation
blood pressure
neck: for adenopathy and thyroid assessment
abdominal examination
breasts: beginning at age 20, every one to three years; yearly after age 40
pelvic: based on age or medical history
other physical examination as clinically indicated

Laboratory, imaging, and other tests should be done based on age and risk factors (see www.acog.org/~/media/Departments/Annual%20Womens%20Health%20Care/PrimaryAndPreventiveCare.pdf).[3]

Office Care of Women, ed. Martin E. Olsen and Botros Rizk. Published by Cambridge University Press.

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Pelvic examination

ACOG recommends a pelvic exam annually in women 21 years and older even though no evidence supports or refutes its use in asymptomatic, low-risk patients. The decision whether or not to perform a pelvic exam in an asymptomatic patient should be a shared decision between the patient and her physician. A pelvic exam should be done in women with symptoms of pelvic, genital tract, urological, or gastrointestinal problems.[1]

Cancer screening

Screening for certain cancers allows for early detection and improves cure and survival rates. Here we address screening for cancers that have shown a benefit toward improved outcomes with minimal harm from testing.

Breast cancer

Breast cancer is the most common cancer diagnosed in women in the United States, and screening has effectively reduced breast cancer mortality. General screening recommendations apply to women who are not at increased risk for breast cancer by virtue of a known genetic mutation or history of chest radiation. Genetic mutations account for a small percentage of women diagnosed with breast cancer annually; increasing age is the most important risk factor breast cancer.[4]

Mammography

In 2009 the US Preventive Serviced Task Force (USPSTF) recommended mammogram screening every two years for women aged 50 to 74 years, with individualization of biennial screening for younger women (aged 40 to 49 years) based on personal circumstances and values.[5] The American Cancer Society (ACS) and ACOG strongly recommend yearly screening with mammography beginning at age 40 years.

Life expectancy and medical comorbidities should be taken into account when screening women over the age of 75. The benefits of mammography decrease compared to the harms of overtreatment with advancing age. At age 75, women in consultation with their physician should decide whether to continue or stop screening.[4]

Clinical breast examination

A clinical breast exam should be done yearly for women 40 years and older and every one to three years for women aged 20 to 39 years.

Breast self-examination and breast self-awareness

Breast self-examination (BSE) is a method for women to examine their own breasts in a systematic way on a regular basis. BSE has not been proven to reduce morbidity or mortality related to breast cancer and may increase harm related to biopsies for false positive findings. ACOG and the ACS promote breast self-awareness. It focuses on women knowing what is normal for their own breasts so that any change, even a small one, can be recognized and reported to a health-care provider.

Enhanced screening for women at increased risk

Women with a known BRCA 1/2 mutation, 20% risk of breast cancer based on risk models, or personal history of breast cancer, as well as those who had thoracic radiation require enhanced surveillance for breast cancer. This includes twice yearly clinical breast exams, a yearly mammogram, a yearly breast MRI, and instruction on breast self-examination. For those women at risk due to thoracic radiation, screening should begin 8 to 10 years after they received treatment or at age 25, whichever occurs latest.[4]

Prevention of breast cancer in women at increased risk

Physicians should counsel and prescribe risk-reducing medications, such as tamoxifen or raloxifene, for women at increased risk for breast cancer and low risk for adverse medication effects.[6]

Cervical cancer

Routine screening with cervical cytology (Pap test) has reduced the incidence and mortality for cervical cancer in the United States by more than 50%.

Screening with cervical cytology should start at age 21, with Pap tests every three years through age 29. From age 30 to 65 years, women should have a Pap test simultaneously with a high-risk (oncogenic) human papillomavirus (HPV) test every five years or a Pap test alone every three years. Women aged 21 to 29 years should not be screened with HPV testing unless it is used to triage an abnormal result. Women younger than 21 years of age should not be screened regardless of the age of onset of sexual activity. Women who have undergone a hysterectomy and retain their cervix should continue routine age-based surveillance. Women with a previous history of CIN II or higher should continue to undergo routine age-based screening for 20 years beyond the initial post-treatment surveillance period even if that takes them beyond 65 years of age.

Woman with HIV infection should be screened twice a year in the first year after diagnosis, then annually thereafter. The Centers for Disease Control and Prevention (CDC) recommends initiating screening the year that diagnosis is made, even if the woman is younger than 21. There are no guidelines for screening in women who are immune-compromised due to other diseases or conditions, so beginning annual screenings at age 21 should be sufficient.

Colorectal cancer

Colorectal cancer (CRC) is the third leading cause of death among women in the United States. Although rectal bleeding is the most common symptom, most people diagnosed with colon cancer do not have symptoms. The American College of Gastroenterology (ACG) recommends both cancer prevention tests that can find cancer as well as polyps and cancer detection tests that have lower sensitivities for polyps and cancer (Table 1-1). Overall, the preferred screening method is colonoscopy every 10 years beginning at age 50, except for African Americans, who should begin screening at age 45. Detection tests may be used if a patient declines a prevention test or if prevention tests are not available to the patient. Women at higher risk for colon cancer due to strong family history, familial adenomatous polyposis (FAP) or hereditary non polyposis colorectal cancer (HNPCC) require more rigorous surveillance. Heavy cigarette smoking and obesity are linked to higher risk of CRC and occurrence at an earlier age. Therefore, consideration for earlier screening (possibly beginning at age 45) should be made on an individual basis for women who are heavy smokers or obese.[8]

Table 1-1 Colon cancer screening for the general population

Starting age	Tests	Frequency
50 years; 45 years for African Americans	**Prevention tests***	
	Colonoscopy**	Every 10 years
	Flexible Sigmoidoscopy	Every 5–10 years
	CT Colonography	Every 5 years
	Detection tests	
	Fecal Immunochemical Test for blood (FIT)***	Annually
	Fecal DNA	Every 3 years

* Prevention tests should be offered first.
** Colonoscopy is the preferred prevention test.
*** Preferred detection test. Hemoccult Sensa – 3 patient-collected samples.
Source: Compiled from Rex DK, Johnson DA, Anderson JC, et al. American College of Gastroenterology guidelines for colorectal cancer screening 2009. *Am J Gastroenterol* 2009 Mar;104(3): 739–50.

Ovarian cancer

Routine screening for ovarian cancer in asymptomatic women is not recommended. Women at high risk for ovarian cancer (BRCA gene mutation or family history suggesting hereditary cancer syndrome) should undergo genetic counseling to assess their risk and, if appropriate, be offered ovarian cancer screening. Screening with CA-125 and transvaginal ultrasound every six months has been recommended for high-risk patients, but it has not shown to improve survival rates. ACOG recommends offering risk-reducing salpingo-oophorectomy for BRCA1- or BRCA2-positive women by age 40.[9]

Lung cancer

Annual screening for lung cancer with low-dose computed tomography is recommended for adults aged 55 to 80 years who have at least a 30-pack-per-year smoking history and currently smoke or who have quit smoking within the past 15 years. Screenings should stop once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.[10]

Bone health and osteoporosis

Bone health

Women are five times more likely than men to develop osteoporosis, and women are twice as likely to have a fracture. ACOG recommends discussing bone health early in a woman's life, starting at puberty and adolescence when women are at the peak bone-building stage. Adequate nutrition and regular physical activity are essential for strong bones.[11] Calcium and vitamin D affect bone quality, and adequate quantities should be consumed through diet or supplementation (Table 1-2).[12]

Table 1-2 Calcium and vitamin D recommendations

Nutrient	Age	Recommended daily dietary intake
Calcium	9–18 years 19–50 years >50 years	1,300 IU* 1,000 IU 1,200 IU
Vitamin D	≤70 years >70 years	600 IU 800 IU

* International units.
Source: Ross AC, Manson JE, Abrams SA, et al. The 2011 report on dietary reference intakes for calcium and vitamin D from the Institute of Medicine: what clinicians need to know. *J Clin Endocrinol Metab* 2011;96:53–8.

Table 1-3 BMD screening recommendations

Risk factors	Test and frequency
≥65 years	DXA every 2 years; FRAX yearly if osteopenia
<65 years postmenopausal with >1 risk factor*	DXA every 2 years; FRAX yearly if osteopenia
Current smoker	
Alcoholism	
Rheumatoid arthritis	

* Risk factors:
Medical history of a fragility fracture
Body weight less than 127 lbs.
Medical causes of bone loss (medications or diseases)
Parental medical history of hip fracture
Source: American College of Obstetricians and Gynecologists. Osteoporosis. Practice Bulletin No. 129. *Obstet Gynecol* 2012;120: 718–34.

Table 1-4 Interpretation of BMD

Category	T-score*
Normal	≥–1.0
Osteopenia (low bone density)	<–1.0 to >–2.5
Osteoporosis	≤–2.5

* T-score is the number of standard deviations above or below the mean average bone density value for young adult women.
Source: American College of Obstetricians and Gynecologists. Osteoporosis. Practice Bulletin No. 129. *Obstet Gynecol* 2012;120: 718–34.

Table 1-5 Recommendations for osteoporosis treatment

- T-score of –2.5 or less (osteoporosis)
- History of low-trauma fracture
- T-score from –1 to –2.5 (osteopenia) and one of the following:

FRAX score ≥3% for risk of hip fracture
FRAX score ≥20% for risk of a major osteoporotic fracture (forearm, hip, shoulder, or clinical spine fracture)

Source: American College of Obstetricians and Gynecologists. Osteoporosis. Practice Bulletin No. 129. *Obstet Gynecol* 2012;120: 718–34.

Osteoporosis screening

DXA

Bone mineral density (BMD) screening should begin at age 65 for all women. A dual-energy x-ray absorptiometry (DXA) of the lumbar spine and hip is the gold standard for diagnosis. Screening should be done every two years. Postmenopausal women younger than 65 should be screened with DXA only if they have significant risk factors for osteoporosis and/or bone fracture (Tables 1-3 and 1-4).

FRAX

The fracture risk assessment tool, FRAX (www.sheffield.ac.uk/FRAX) determines a patient's probability of developing fracture in the next 10 years. It assesses risk based on BMD at the femoral neck and clinical factors. An annual FRAX score should be calculated to monitor the effect of age on fracture risk when osteopenia is diagnosed by DXA (Table 1-5).

Heart and vascular health

Hypertension

Chronic hypertension is a common and significant health problem predisposing women to increased risks of heart disease, stroke, renal disease, and other vascular diseases. Blood pressure (BP) should be assessed at each visit, and the diagnosis of elevated blood pressure is made if abnormal readings are detected on two separate visits.[13]

It is necessary to be familiar with diagnostic criteria and treatment guidelines (Table 1-6).

Table 1-6 Classification and management of blood pressure*

Classification	Systolic BP	Diastolic BP	Lifestyle modification	Initial drug therapy	
				Without compelling indications	With compelling indications**
Normal	<120	and <80	Encourage	No drug therapy indicated	Drug(s) for compelling indications
Prehypertension	120–139	or 80–89	Yes		
Stage I hypertension	140–159	or 90–99	Yes	Thiazide-type diuretics for most; may consider ACEI, ARB, BB, CCB, or combination	Drug(s) for compelling indications; other antihypertensive medications as needed
Stage II hypertension	≥160	≥100	Yes	Two-drug combination for most (usually thiazide-type diuretic and ACEI or ARB or BB or CCB)	

Drug abbreviations: ACEI – angiotensin converting enzyme inhibitor; ARB – angiotensin receptor blocker; BB – beta blocker; CCB – calcium channel blocker.
* Treatment determined by highest BP category.
** See Table 1-14.
Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Table 1-7 Basic workup for hypertension

Physical exam	• Fundoscopic eye exam • Auscultation for carotid, abdominal, and femoral bruits • Thyroid palpation • Heart and lung exam • Abdominal exam for enlarged kidneys, masses or abnormal aortic palpation • Lower extremity exam for edema and pulses • Neurological assessment	
Diagnostic tests and labs	Electrocardiogram Lipid profile Blood glucose Creatinine	Serum potassium Calcium Hematocrit Urinalysis

Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Evaluation

Evaluation for end organ damage (Table 1-7), identifiable causes (Table 1-8), and cardiovascular risk factors should be done once hypertension is diagnosed. Treatment or referral for treatment should also occur.

Treatment

The fundamental goal of treatment is the reduction of cardiovascular and renal morbidity and mortality. The therapeutic BP target is <140/90 mmHg. In hypertensive patients with diabetes or renal disease, the BP goal is <130/80 mmHg. Lifestyles changes (Table 1-9) should be recommended for all patients with hypertension and are first line of treatment unless stage II hypertension or compelling indications exist. Many medications are available for treatment, but typically thiazide-type

Table 1-8 Identifiable causes of hypertension

- Sleep apnea
- Obesity
- Renal diseases
- Endocrine disorders: thyroid, parathyroid, adrenal disorders, primary aldosteronism, pheochromocytoma
- Medications: corticosteroids, adrenal steroids, nonsteroidal anti-inflammatories, oral contraceptives, sympathomimetics (decongestants, anoretics), cyclosporine, tacrolimus, erythropoietin
- Illicit drugs: cocaine, amphetamines, and others
- Herbal medications or dietary supplements: ma huang, ephedra, licorice, bitter orange
- Excessive alcohol intake

Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Table 1-9 Lifestyle modifications for hypertension management

Modification	Recommendation	Approximate SBP reduction
Weight loss	Maintain normal BMI 18.5–24.9 kg/m^2	5–20 mmHg per 10 kg weight loss
DASH diet	Consume diet rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat	8–14 mmHg
Reduce sodium intake	Reduce dietary sodium intake to no more than 2–4 gram sodium or 6 grams of sodium chloride daily	2–8 mmHg
Physical activity	Engage in regular aerobic activity at least 30 minutes per day for most days of the week	4–9 mmHg
Limit alcohol consumption	No more than 1 drink per day in women (2 drinks per day in men)	2–4 mmHg

DASH – dietary approach to stop hypertension.
Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Table 1-10 Compelling indications and recommended medications

Compelling indication	Recommended drugs*					
	Diuretic	BB	ACEI	ARB	CCB	AldoANT
Chronic kidney disease			X	X		
Diabetes	X	X	X	X	X	
Heart failure	X	X	X	X		X
High coronary disease risk	X	X	X		X	
Postmyocardial infarction		X	X			X
Recurrent stroke prevention	X		X			

Drug abbreviations: ACEI – angiotensin converting enzyme inhibitor; ARB – angiotensin receptor blocker; AldoANT – aldosterone antagonist; BB – beta blocker; CCB – calcium channel blocker.
* Compelling indications for antihypertensive drugs are based on benefits from outcome studies or existing clinical guidelines; the compelling indication is managed in parallel with the hypertension.
Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

diuretics work for most patients (Table 1-10). African Americans respond better to diuretics and calcium channel blockers than the other classes of medications. Certain compelling indications respond better to certain classes of medications (Table 1-10).[14]

Table 1-11 Coronary heart disease risk factors

- Familial hyperlipidemia
- Family history of premature cardiac disease (aged <50 years in men or <60 years in women)
- Personal history of CHD
- Personal or family history of peripheral artery disease
- Personal history of non-coronary atherosclerosis
- Diabetes
- Obesity (BMI >30)
- Hypertension
- Tobacco use

Source: Compiled from American College of Obstetricians and Gynecologists Annual Women's Health Care High Risk Factors (available at www.acog.org/About-ACOG/ACOG-Departments/Annual-Womens-Health-Care/High-Risk-Factors) and USPSTF's Screening for Lipid Disorders in Adults: US Preventive Services Task Force Recommendation Statement, June 2008 (available at (www.uspreventiveservicestaskforce.org/uspstf08/lipid/lipidrs.htm).

Table 1-12 Classification lipid values

	Description	Value (mg/dL)
Total cholesterol	Desirable Borderline high High	<200 200–239 ≥240
LDL cholesterol	Optimal Near optimal Borderline high High Very high	<100 100–129 130–159 160–189 ≥190
HDL cholesterol	Low High	<40 ≥60
Triglycerides	Normal Borderline high High Very high	<150 150–199 200–499 ≥500

Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Table 1-13 Therapeutic lifestyle changes for lowering LDL

Essential component	Recommendation
LDL-raising nutrients: Saturated fats Dietary cholesterol	Less than 7% of calories Less than 200 mg/day
Therapeutic options to lower LDL: Plant stanols/sterols Increased viscous (soluble) fiber	2 grams per day 10–25 grams per day
Total calories	Adjust total caloric intake to maintain desirable body weight/prevent weight gain
Physical activity	Include enough moderate exercise to expend at least 200 kcal per day

Source: National Heart, Lung, and Blood Institute; National Institutes of Health; US Department of Health and Human Services.

Lipid screening

ACOG recommends lipid screening women 45 years and older every five years and between the ages of 19 and 45 years based on risk factors (Table 1-11).[3, 15] The National Institutes of Health (NIH) NHLBI recommends lipid screening for all persons age 20 years and older every five years.[16] The USPSTF strongly recommends screening women 45 years and older if they have increased risk of CHD.[17]

Laboratory testing should include total cholesterol, low density lipoprotein (LDL), high density lipoprotein (HDL) and triglycerides (Table 1-12).

A strong relationship exists between LDL-cholesterol level and CHD, therefore LDL is the primary target for treatment. Therapeutic lifestyle changes (Table 1-13) are recommended to lower LDL and minimize other risks factors. Cholesterol lowering drugs should be used when lifestyle modifications fail to reach target LDL levels or when LDL levels are high (≥160) or risk for CHD is high based on cholesterol levels or multiple risk factors. HMG CoA reductase inhibitors (statins) are considered first-line drugs when medications are indicated.[16]

Stroke prevention in women

Aspirin prophylaxis to prevent ischemic stroke in women aged 55 to 79 is recommended by the USPSTF if benefits outweigh the potential harm from gastrointestinal bleeding.[18]

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Family planning

In women of reproductive age, including adolescents and women over the age of 40, inquiry into their plans for pregnancy should be made at annual visits.[19]

Pregnancy planning and preconception counseling

Women who desire pregnancy should be encouraged to create a reproductive health plan. This includes timing of pregnancy, spacing, number of children and age-related changes in fertility. Overall health should be optimized. Medical conditions that could impact pregnancy should be identified and treated. Patients should be counseled on unhealthy exposures such as poor nutrition, alcohol, tobacco and other drugs. Folic acid supplementation starting at least one month prior to attempting pregnancy should be recommended. Screening for immunity to rubella, hepatitis, pertussis, and varicella should be done with immunization against these provided if it is indicated. HIV counseling and testing should be done.[19]

Contraception counseling

Women who do not desire pregnancy should be counseled on contraceptive methods. Counseling should be tailored to the patient's needs and lifestyle. It should include various methods, benefits, potential risks, and information on how to decrease contraceptive failures. The patient should be assessed for general health and any medical conditions that could be impacted either by a contraceptive method or by pregnancy. Blood pressure and weight should be measured as these could affect the medical risks or efficacy of certain methods. In women with no health risks, no laboratory testing is needed. Testing for sexually transmitted infections (STIs) is not required prior to prescribing any method. Routine screening for hereditary thrombophilia is not indicated before providing hormonal contraceptives. The ultimate guiding principle in prescribing one method over another should be the patient's choice, barring no contraindications to use of a method. As protection against STIs, the need for barrier methods should always be stressed. Information on when and how to use emergency contraception should be provided. Follow appointments should be made within one to two months of initiating a method, especially in first time users, to assess for side effects and compliance, check blood pressure and address any concerns regarding use.[19]

The CDC provides guidance for contraceptive use in the United States and can be found at www.cdc.gov/mmwr/pdf/rr/rr6205.pdf.[20]

Immunizations

Immunizations are an important part of preventive health care. Indications and ages for administration in the adult population are as follows and are available at www.cdc.gov/vaccines/schedules/hcp/imz/adult.html.

Influenza Administer annually for all ages.

Human papillomavirus (HPV) Offer to all women aged 9 to 26 years.

Tetanus, diphtheria, and pertussis (Td/Tdap) Tdap should be administered for women who have not received Tdap previously or who have unknown status, then Td booster should be given every 10 years. Tdap should be administered in each pregnancy regardless of prior vaccination interval.

Varicella Administer to all without documentation of prior immunization or evidence of immunity.

Zoster Administer one dose to adults 60 years and older regardless of prior episode of herpes zoster.

Measles, mumps, rubella (MMR) Adults born prior to 1957 are considered immune to measles and mumps. Adults born in 1957 or later should have one or more doses of MMR given. Revaccination is recommended in adults if they have nonimmune status, are a student in postsecondary education, work in a health-care facility, or travel internationally. Rubella immunity should be determined for all pregnant women and if nonimmune one dose should be given after delivery prior to discharge from hospital.

Pneumococcal Administer once to all women aged 65 years or older and to adults <65 years of age with one of the following conditions:

- chronic lung disease
- chronic cardiovascular disease
- diabetes
- asplenia
- immune-compromising conditions
- chronic renal failure
- nephrotic syndrome
- chronic liver disease
- resident in nursing home or long-term care facilities
- adults who smoke

One time revaccination is recommended five years after first dose for individuals with asplenia, immune-compromising conditions, chronic renal failure, or nephrotic syndrome.

Meningococcal Administration is recommended for the following persons:

- all adults with asplenia or persistent complement deficiencies
- college students up to age 21 years living in residence hall if not vaccinated at ≥16 years of age
- microbiologists routinely exposed to *Neisseria meningitidis*
- military recruits
- persons at risk during an outbreak
- persons who live in or travel to countries where meningococcal disease is hyperendemic or epidemic

Revaccination every five years is recommended if asplenia, persistent complement deficiencies, or microbiologist routinely exposed to *Neisseria meningitidis*.

Hepatitis A Any person seeking protection from hepatitis A virus or with the following indications:

- chronic liver disease
- persons who receive clotting factor concentrates
- persons traveling or working in countries where hepatitis A is endemic
- unvaccinated persons with close contact to an international adoptee from countries where hepatitis A is endemic

Hepatitis B Any person seeking protection from hepatitis B virus or the following indications:

- sexually active persons with more than one partner in six months
- persons seeking evaluation or treatment for a sexually transmitted disease
- IV drug users
- health-care workers or others exposed to blood or other bodily fluids
- household contacts or sexual partners of persons with hepatitis B
- travelers to countries with intermediate or high prevalence of chronic hepatitis B infection
- clients or staff members of institutions for persons with developmental disabilities
- persons with chronic liver disease
- persons with HIV infection
- persons with end-stage renal disease
- persons with diabetes younger than age 60 or those who are 60 years or older if likelihood of acquiring hepatitis B

Haemophilus influenzae type B Administer to persons with asplenia or sickle cell disease or to those who have had a successful hematopoetic stem cell transplant.

Vaccinations for travel Information on vaccines for travel requirements is available through the CDC at wwwnc.cdc.gov/travel/destinations/list.[21]

Screening for infections

Bacteruria

Asymptomatic bacteruria screening is not recommended in asymptomatic women;[24] however, ACOG recommends screening in women 65 years and older.[3] Pregnant women should be screened at 12 to 16 weeks or at the first prenatal visit if it occurs later.[22]

Chlamydia

All sexually active women ≤25 years of age should be screened annually. Older women should be screened based on risk factors (e.g., new or multiple sex partners).[23]

Gonorrhea

ACOG recommends annual screening for all sexually active women ≤25 years of age.[3] The CDC recommends gonorrhea screening only to those at increased risk for infection (e.g., women with previous gonorrhea infection, other sexually transmitted diseases (STDs), new or multiple sex partners, and inconsistent condom use; those who engage in commercial sex work and drug use; women in certain demographic groups; and those living in communities with a high prevalence of disease).[23]

Hepatitis B virus

Screening for hepatitis B virus (HBV) in nonpregnant women is recommended for individuals with high risk for infection (Table 1-14).[24] All pregnant women should be screened at their first prenatal visit.[25]

Hepatitis C virus

Routine screening for hepatitis C virus (HCV) is not recommended for the general population, including pregnant women. One-time screening for adults born

Table 1-14 High-risk factors for hepatitis B infection

- Household or sexual contacts of HBV infected persons
- Intravenous drug users
- HIV infected persons
- Persons born in a geographic area where prevalence ≥2% (i.e., most of Asia, most of Africa, Australasia with the exception of Australia and New Zealand, and parts of South America)
- Persons not vaccinated as an infant and whose parents were born in geographic area where prevalence ≥8% (i.e., sub-Saharan Africa, central and southeast Asia, and China)
- Persons receiving hemodialysis or cytotoxic or immunosuppressive therapy

Source: USPSTF's Screening for Hepatitis B Virus Infection in Nonpregnant Adolescents and Adults: Final Recommendation Statement, AHRQ Publication No. 12-05172-EF-2, available at www.uspreventiveservicestaskforce.org/uspstf12/hepb/hepbfinalrs.htm.

Table 1-15 High-risk factors for hepatitis C infection

- Past or current injection drug use
- Recipient of blood transfusion prior to 1992
- Long-term dialysis
- Born to a mother with HCV infection
- Incarceration
- Intranasal drug use
- Getting an unregulated tattoo
- Percutaneous exposure with HCV infected blood

Source: USPSTF's Screening for Hepatitis C Virus Infection in Adults: Final Recommendation Statement, AHRQ Publication No. 12-05174-EF-2, available at www.uspreventiveservicestaskforce.org/uspstf12/hepc/hepcfinalrs.htm (accessed November 30, 2015).

Table 1-16 Risk factors for HIV infection

- Injection drug users
- Sex partners of injection drug users
- Exchanging of sex for money or drugs
- Sex partners of HIV infected persons
- Sex with men who have sex with men since the most recent HIV test
- More than one sex partner since their most recent HIV test

Source: American College of Obstetricians and Gynecologists. Routine human immunodeficiency virus screening, Committee Opinion No. 596. *Obstet Gynecol* 2014;123:1137–9.

between 1945 and 1965 is recommended. Periodic screening is recommended for persons with a high risk of infection (Table 1-15).[26]

Herpes simplex virus

The USPSTF and CDC do not recommend routine screening for herpes simplex virus (HSV) in asymptomatic patients, even pregnant women.[27] According to the CDC, type-specific HSV serology may be helpful in the following situations:

- recurrent genital symptoms or atypical symptoms with a negative HSV culture
- clinical diagnosis of HSV without laboratory confirmation
- a partner with genital herpes

For women who are seeking an STD evaluation, HSV serology should be considered if they have multiple sexual partners or have HIV infection.[23]

Human immunodeficiency virus

ACOG recommends screening women aged 13–64 years for human immunodeficiency virus (HIV) at least once in their lifetime and annually thereafter based on risk factors outlined in CDC guidelines (Table 1-16). Physicians should annually review patients' risk factors for HIV and assess the need for retesting. Patients may opt out.[28]

All pregnant women should be screened for HIV as part of their routine prenatal testing.[29]

Syphilis

All pregnant women should be screened and nonpregnant women at increased risk of infection because of high-risk sexual activities including commercial sex workers, persons who exchange sex for drugs, persons in correctional facilities, those with HIV infection, and contacts of persons with active syphilis.[30]

Tuberculosis

Tuberculosis (TB) tests are generally not needed for people with a low risk of infection. Certain people should be tested for TB because they have a higher risk of infection (Table 1-17).[31]