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Preventive medicine provides important benefits to all persons, including older adults; however, these benefits may be seen more clearly in younger adults than in older persons. Smoking cessation, proper nutrition, exercise, and immunizations are important regardless of age. The prevalence of illness increases as we age; at the same time, life expectancy decreases. All physicians and patients should consider the potential benefits of screening and treatment vs conservative management. We discuss lifestyle recommendations such as smoking cessation, exercise, and good nutrition, as well as the role of screening for cardiovascular disease, cancer, and sensory and other disorders. These recommendations are derived from evidence-based guidelines when available; issues not associated with established guidelines are discussed on the basis of best current thinking.


LIFESTYLE ISSUES AND COUNSELING

Smoking Cessation

Smoking is clearly a detrimental behavior in persons of all ages.4 It causes multiple illnesses including lung cancer,5 chronic obstructive pulmonary disease,6 and cardiovascular disease.7 Smoking remains one of the most modifiable risk factors for heart disease,7 chronic obstructive pulmonary disease, and malignancy. It affects both mortality and functionality. Public health agencies have recognized the danger of smoking and have made a concerted effort to reduce or eliminate it.8 Health care providers should advise smoking cessation at each patient visit for both elderly patients and the general population,8,9 regardless of age or comorbid status.

Exercise

Exercise and physical activity are the hallmarks of physical independence for patients of all ages. In the elderly population, the ability to perform physical activities is often the difference between independent living and living with assistance. Older patients should increase their exercise to increase independence and functionality.10 Exercise influences diabetes, obesity, and cardiovascular disease.11 Ideally, patients of all ages should participate in both aerobic and anaerobic activities.12 Health care providers should discuss exercise periodi-

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cally with older adults. Patients with diabetes, coronary heart disease, and vascular disease, in particular, should exercise. In keeping with the guidelines of the USPSTF, we recommend that exercise be emphasized at least once a year for older patients. In short, exercise should be a part of every person’s life.

Nutrition

Nutrition plays a large role in the lives of all older adults. Health care providers and dietitians often spend considerable time discussing diet with older adults because elderly persons often manifest either malnutrition or obesity. In the outpatient setting, 5% to 10% of elderly persons exhibit signs of malnutrition, as do 30% to 60% of elderly patients in the hospital. We consider a person with a body mass index (BMI) of less than 18.5 kg/m^2 to be malnourished. Numerous factors influence nutritional status, including dentition, comorbid illness, and cognitive status. Screening for malnutrition often involves questions about weight loss. Involuntary weight loss of 4.5 kg in a period of 6 months should provide clues to malnutrition. The USPSTF recommends a balanced diet in older adults that includes fruits and grains. The USPSTF does not make specific recommendations about antioxidants but recommends calcium supplementation.

Obesity is another nutritional focus of preventive medicine. Controlling weight can help control diabetes, coronary artery disease (CAD), and hypertension. Maintaining a proper diet is in general an important tool in controlling complications of chronic disease. Obesity is defined as having a BMI of more than 25 kg/m^2, and patients with a BMI greater than 30 kg/m^2 have a dramatically increased risk of death. Certainly, discussing nutrition is an important part of disease management for all patients with comorbid illnesses. The USPSTF recommends periodic weight measurement as a screening method for obesity. We recommend at least yearly discussion of diet for all older patients and an accurate measurement of height and weight.

Vision

Older adults rely on visual acuity for safety and for a rich quality of life. Cataracts, glaucoma, macular degeneration, and presbyopia commonly reduce visual acuity. The prevalence of all such illnesses increases with age. States that test vision as part of the driver examination report lower accident rates in older drivers compared with states that do not test vision. The USPSTF has made no formal recommendations on the utility of routine screening. Objective visual screening (Snellen eye chart) can be used in patients with visual complaints. We recommend that all patients be asked periodically about their vision. If abnormalities are detected, more definitive evaluation can be performed.

Hearing

Hearing, like vision, can be an important issue for quality of life in older adults. Up to 33% of adults older than 65 years report objective hearing loss in one ear. Older adults can experience isolation and decreased activity as a result of decreased hearing. Routine screening for hearing loss in asymptomatic adults older than 65 years has not been recommended or endorsed by the USPSTF. Subjective screening is preferred. We believe that health care providers should discuss hearing loss with older adults, and we recommend subjective screening in such persons, with special attention to those older than 75 years. If subjective screening reveals hearing complaints, objective audiologic evaluation should be performed.

Dentition

Dental evaluations and preservation of original teeth are often important components of proper nutrition for older adults. Routine dental care can provide plaque removal, which can prevent cavities and tooth loss. Dental care also maintains dentures or other dental appliances. Although there are no formal USPSTF recommendations for the frequency of dental visits, the task force does recommend periodic complete dental evaluations. All older adults should brush their teeth daily and have access to fluoride in the form of toothpaste or gel; patients should also floss daily to prevent caries. We fully recommend routine dental evaluations as a means of maintaining optimal dentition.

Evaluation for oral cancer by primary care providers should be considered in high-risk patients. Patients who currently chew or smoke tobacco or have previously done so are considered to be at high risk for oral cancer. All patients should be counseled to quit using tobacco. The USPSTF has made no recommendations for or against routine screening in the higher-risk population. We recommend manual evaluation of the oral cavity for oral cancer and fully concur with tobacco cessation.

SCREENING

Hypertension

Hypertension is common in the elderly population and poses considerable risks. Of non-Hispanic white persons older than 60 years, 60% have hypertension. Physicians who treat patients older than 60 years with antihypertensive agents are preventing strokes and cardiovascular events in this group. In the Systolic Hypertension in the Elderly Program (SHEP), the “number needed to treat” was 43 to prevent 1 stroke. Detection and adequate treatment of hypertension in the older population provide substantial
Hypertension in the elderly population is defined as a systolic blood pressure level of more than 140 mm Hg and a diastolic level of more than 90 mm Hg. A systolic blood pressure level of 121 to 140 mm Hg and a diastolic level of 81 to 90 mm Hg is considered prehypertension. Two independent sets of readings should be obtained. The recommendations from The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure do not differ with respect to age. Ambulatory blood pressure monitoring might be useful in patients with “white coat hypertension” or in those with resistant hypertension. Routine blood pressure screening should be done annually or every 2 years. The USPSTF recommends screening every 2 years for patients older than 65 years if they have had a systolic blood pressure level of less than 140 mm Hg and a diastolic level of less than 85 mm Hg. If the diastolic level is 85 to 90 mm Hg, the recommendations are for annual screening. If possible, blood pressure levels should be obtained at each visit. We fully agree with the USPSTF recommendations to screen blood pressure levels every 1 to 2 years.

Hyperlipidemia

Hyperlipidemia, like hypertension, is an important risk factor for many chronic illnesses, including CAD. Primary prevention and treatment of hyperlipidemia have led to a reduction in cardiovascular mortality and all-cause mortality. There is even stronger evidence for a reduction in mortality through secondary prevention of hyperlipidemia in patients with known CAD. Optimal control of hyperlipidemia is achieved in diabetic patients and in patients with previous CAD by maintaining a low-density lipoprotein (LDL) cholesterol level of less than 100 mg/dL. In patients with 2 or more risk factors (family history of CAD, smoking, hypertension, low level of high-density lipoprotein cholesterol, or age older than 45 years in men or older than 55 years in women), the optimal LDL cholesterol level is less than 130 mg/dL. In all other persons, the ideal LDL level is less than 160 mg/dL. All older adults have at least 1 risk factor from age alone. Most older patients will have a goal LDL level of less than 130 mg/dL because of risk factors.

Screening for lipids should start after the age of 35 years. A definite cutoff age for screening has not been determined. Certainly, appropriate treatment of lipids is important for secondary prevention of hyperlipidemia in patients with CAD. Trials that studied this problem have included many patients older than 65 years, and their results likely can be generalized to the older population. The appropriateness of screening and treatment for primary prevention in older patients at low risk is uncertain. The USPSTF recommends lipid screening for primary prevention of hyperlipidemia in adults aged 35 to 65 years but does not recommend routine screening beyond that age. The USPSTF discussed the possibility of screening high-risk persons (smokers, diabetic patients, and hypertensive patients).

Given the strength of the information, we recommend that all older adults with CAD or CAD equivalent (eg, cerebrovascular disease or arteriosclerosis obliterans) be screened and that appropriate treatment be given for hypercholesterolemia. Also, in persons with a high risk of CAD (diabetic patients, smokers, hypertensive patients), it would be reasonable to recommend lipid screening. Screening should be discontinued when both the physician and the patient (or family) agree that therapy for hypercholesterolemia would not be warranted. As with most screening maneuvers, the quality of life of the patient must be considered.

Osteoporosis

Osteoporosis is a common condition in elderly persons, in both women and men. The USPSTF recommends calcium supplementation for all women. Women older than 65 years should receive 1000 to 1500 mg of calcium per day. The USPSTF gives no specific recommendations about the utility of routine bone mineral density screening but does recommend preventive measures of adequate calcium intake, physical exercise, and smoking cessation. The American Association of Clinical Endocrinologists recommends bone mineral density screening in all women older than 65 years and in women with a high risk of fracture. Women, particularly high-risk women, should make appropriate lifestyle modifications and discuss bone mineral density testing with their health care provider.

Routine Cardiovascular Screening

The role of routine cardiovascular screening in older asymptomatic adults has not been well defined. The USPSTF does not make recommendations for or against routine individual screening. Screening would include obtaining a resting or stress electrocardiogram. The role of routine resting electrocardiography is questionable for asymptomatic older adults. We agree with the USPSTF recommendations that routine electrocardiography should not be part of preventive services. Emphasis should be placed on screening for and modifying risk factors (smoking, hypertension, hyperlipidemia, and sedentary lifestyle).

Colorectal Cancer

The prevalence of colorectal cancer increases considerably in persons older than 50 years, and it is a major source...
of cancer mortality in the elderly population. The age-specific incidence of colorectal cancer increases from 15 new cases per 100,000 persons at age 40 to 50 years to more than 400 cases per 100,000 persons in adults older than 80 years. Secondary prevention of colorectal cancer involves screening to detect adenomas and early stages of cancer. Aggressive screening and polypectomy can reduce the rate of colon cancer by about 80%. Colorectal cancer screening should start when a person is 50 years old. The cost of screening per life-year saved is comparable with all modalities.

Fecal Occult Blood Test.—Randomized controlled trials reveal that annual screening with the fecal occult blood test (FOBT) can reduce mortality from colorectal cancer (relative risk reduction, 16%). Sensitivity of the FOBT ranges from 50% to 90%, and specificity varies from 90% to 98%. These statistics depend on several factors, including rehydration of samples and frequency of testing. The disadvantage of the FOBT is that it may lead to unnecessary colonoscopy because of false-positive results, with the inherent risks and added cost of further testing. For every cancer detected by the FOBT, nearly 18 patients will undergo a colonoscopic examination that shows normal findings.

Flexible Sigmoidoscopy.—Retrospective studies have shown that sigmoidoscopic screening reduces mortality from colorectal cancer. Flexible sigmoidoscopy should be performed every 5 years. A biopsy should be performed on polyps found on screening. No treatment is required if the polyps are hyperplastic, but colonoscopy is indicated if adenomatous polyps are found. A 3-year follow-up colonoscopy is recommended in patients with resected adenomas. If results of a further colonoscopy are normal, the next colonoscopy may be delayed up to 5 years. About half of advanced proximal neoplasms may be missed with sigmoidoscopy alone. A major complication of flexible sigmoidoscopy is bowel perforation (about 1 per 10,000 patients).

Barium Enema.—Screening with double-contrast barium enema allows evaluation of the entire colon. This procedure has a lower complication rate than that of colonoscopy. The reported prevalence of large bowel perforation ranges from 0.01% to 0.04%. Barium enema screening should be performed every 5 to 10 years. However, it may miss 25% of tumors and polyps in the rectosigmoid segment (or approximately 2% of all colorectal cancers). Combination Tests With Sigmoidoscopy.—Sigmoidoscopy may be combined with either the FOBT (annually) or barium enema (every 5-10 years) to increase the sensitivity of detecting colorectal neoplasms. In the recent Veterans Affairs Cooperative Study, combined FOBT and sigmoidoscopy had a higher sensitivity (76%) for detecting advanced neoplasms compared with use of the FOBT or sigmoidoscopy alone (24% and 70% sensitivity, respectively). Combining sigmoidoscopy with barium enema has the advantage of total colon evaluation while minimizing the risks associated with colonoscopy.

Colonoscopy.—Colonoscopy is the gold standard for the diagnosis of colorectal cancer. For screening purposes, it should be performed every 10 years. Indications for colonoscopy are shown in Table 1. The rate of major complications (perforation or hemorrhage) is less than 1%, and the risk of death is less than 0.1%. However, with the increasing use of colonoscopy in elderly patients, the frequency of colonic perforation is likely to increase. Colonoscopy becomes technically difficult in elderly persons because of changes in the elasticity and length of the bowel. Endoscopists often see diverticulosis and encounter adhesions from prior surgery, both of which predispose elderly patients to a higher risk of perforation during colonoscopy.

Final Recommendations for Colorectal Screening.—The FOBT is the only screening modality that has been proved to reduce mortality in randomized controlled trials. Although colonoscopy is the gold standard, the cost, problems of availability, and higher complication rate limit its use. Flexible sigmoidoscopy has a lower complication rate than that of colonoscopy, offers good visualization of the distal colon, and allows physicians to perform biopsies. Its sensitivity can be improved when it is combined with the FOBT. Combining flexible sigmoidoscopy and barium enema can provide total colon evaluation if colonoscopy is unavailable, not feasible, or not desired by the patient. On the basis of a computer-simulation model, combined flexible sigmoidoscopy and barium enema screening showed the greatest net reduction in colorectal cancer mortality. However, the choice of screening modality depends on individual preference, comfort, availability of tests, and physician experience.

Screening should be discontinued when early detection of colorectal cancer is unlikely to prolong life. If an older
Breast Cancer

Breast cancer is the most common non–skin cancer and the second-leading cause of cancer death in women in the United States. It accounts for 30% of all new cancers in women, with 180,000 new cases each year. Approximately 44,000 women die each year of breast cancer. Increasing age is the primary risk factor for breast cancer in most women, with both incidence and mortality increasing with age. Other risk factors include history of previous breast cancer, family history of breast cancer in a mother or sister, menarche before the age of 12 years, birth of first child after age 35 years, and menopause after age 53 years. Approximately 45% of all breast cancers occur in women aged 65 years or older. Although epidemiological data are inconclusive, some experts believe that breast cancer in older women may be less aggressive.

Currently, there are 3 methods of screening for breast cancer: mammography, clinical breast examination (CBE), and breast self-examination.

The sensitivity of mammography is estimated to be 63% to 88%, but in older women the sensitivity increases to up to 90%. The American Cancer Society (ACS) and the National Cancer Institute recommend yearly mammography beginning at age 40 years. Eight randomized controlled trials have been conducted on breast cancer screening using mammography with or without CBE. For women aged 50 to 69 years, mammographic screening reduces breast cancer mortality by about a third. Randomized controlled trials in women older than 70 years have not conclusively revealed reduced mortality with mammographic screening. The USPSTF makes no specific recommendations for women older than 70 years. A study of about 690,000 women aged 66 to 79 years showed that mammographic screening in this age group is associated with decreased death from breast cancer. Two case-control studies showed that continuation of mammographic screening until at least the age of 75 years may reduce breast cancer mortality among elderly women (relative risk, 0.45; 95% confidence interval, 0.20-1.02). One study showed that mammographic screening increased life expectancy by 178 days in women aged 85 years and older.

Clinical breast examination detects approximately 50% of screening-detected cancers, whereas mammography detects about 90%. A CBE is less sensitive than mammography for smaller lesions. In older women, breasts become easier to examine because of replacement of glandular tissue by fat. Careful CBE by health care providers becomes extremely useful.

No randomized controlled trials about breast self-examination have been published. Because sensitivity is low and decreases with age, this method is not recommended as a sole standard method of screening for breast cancer in elderly women.

We recommend continuing annual mammography and CBE to the age of 70 years. For women older than 70 years, it is reasonable that breast cancer screening by biennial mammography and annual CBE should be continued for as long as a woman has a life expectancy of 8 to 10 years. Women at high risk for breast cancer should consider continued yearly mammograms. Discontinuation of mammography should be based on an agreement between physician and patient, taking into consideration life expectancy, comorbidities, and quality of life.

Cervical Cancer

Cervical cancer is the third most common gynecologic malignancy in the United States. In 2001, the estimated number of cases of cervical cancer was 12,900, with 4400 deaths. Cervical cancer is the leading cause of cancer death among women in developing countries, likely because of a lack of screening programs. Survival is related to the stage of the cancer at diagnosis. The prevalence of cervical cancer has decreased from 45 per 100,000 to 8 per 100,000 in the past 45 years. The incidence and mortality of invasive cervical cancer increase with age, and this increase is greatest in black women. Of all women who die of cervical cancer, 40% to 50% are aged 65 years or older. Risk factors for cervical cancer include more than 3 years since a previous Papanicolaou test, early age at first intercourse, multiple sexual partners, smoking history, history of sexually transmitted diseases, human papillomavirus or human immunodeficiency virus infection, and low socioeconomic status.

There is a lack of randomized controlled trials to show whether the mortality or the incidence of this invasive disease has declined. However, a large pool of evidence from observational studies supports the effectiveness of cervical cancer screening. The Papanicolaou test is the standard screening test for cervical cancer. Sensitivity ranges from 30% to 80%. There is no consensus regarding the age at which screening with the Papanicolaou test be discontinued; recommendations vary from age 60 to 75 years. The USPSTF recommends that Papanicolaou tests be performed every 1 to 3 years, beginning with the onset of sexual activity and ending at age 65 years, when screening becomes unnecessary if previous tests have
been consistently normal. The National Institutes of Health recommends that women aged 65 years or older continue to be screened; however, it did not provide a recommended frequency of screening. The ACS does not set an upper age limit for screening. The American Geriatrics Society recommends regular Papanicolaou test screening at 1- to 3-year intervals until a woman is at least age 70 years.

We agree with the American Geriatrics Society guidelines that regular Papanicolaou tests should continue at 1- to 3-year intervals until a woman is at least age 70 years. A woman older than 70 years who has received normal results from 3 consecutive annual Papanicolaou tests does not need to continue to be screened for cervical cancer. An older woman at any age who has not had routine screening should receive normal results from 2 consecutive annual Papanicolaou tests before screening is discontinued.

Prostate Cancer

Prostate cancer is the most common cancer in North American men. The prevalence increases with age, with 81% of prostate cancers diagnosed in men aged 65 years or older. Mortality from prostate cancer also increases with age, but the overall lifetime risk of dying from prostate cancer is about 3%. Since the advent of prostate-specific antigen (PSA) screening, 1 in 6 men is likely to be diagnosed as having prostate cancer in his lifetime. Risk factors for prostate cancer include old age, family history of prostate cancer, and black race. Having a first-degree relative with prostate cancer doubles the risk in men. American black men have a 1.5 times increased risk of prostate cancer. Other risk factors include genetic predisposition and a high-fat diet.

The rationale for prostate cancer screening is to reduce mortality and to prevent morbidity; however, data from prospective trials are insufficient to either support or refute this screening. Currently, evidence is insufficient for screening in asymptomatic average-risk men. Unnecessary concern and anxiety may be generated from false-positive results or from the detection of slow-growing indolent tumors. Further testing in this group may be unnecessary and inconvenient. Instead of decreasing morbidity, the treatment of localized indolent disease may result in incontinence and impotence. Finally, most prostate cancers progress slowly, and older asymptomatic men with prostate cancer usually die of other causes.

Among the screening tests for prostate cancer, the digital rectal examination has a sensitivity of 55% to 68% in asymptomatic men. The examination is inexpensive and simple to perform, and its positive predictive value increases with age because of the increased prevalence of prostate cancer. However, it is examiner-dependent, and reproducibility is low. This method has poor sensitivity because prostate cancers may lie anterior to the area of examination. Also, the presence of hyperplasia may make detection of tumors difficult.

The PSA test is a common blood test with a sensitivity of 80% and a specificity of 91%. These statistics vary with the cutoff level of acceptable PSA and the age of the patient. The presence of benign prostatic hypertrophy reduces the specificity of the test. However, it has a higher positive predictive value than does the digital rectal examination and a higher sensitivity for detecting aggressive vs indolent cancers. The PSA is also useful for monitoring disease recurrence in treated patients. A false-positive PSA result may occur in benign prostatic hypertrophy or prostatitis or after urinary procedures. If all men with a PSA level of 4 to 10 ng/mL were to undergo a biopsy, only 25% would have biopsy-proven prostate cancer. If PSA testing alone were used for detecting prostate cancer, one quarter of cancers would be undetected.

Methods have been implemented to improve the specificity of prostate cancer screening, including PSA density, PSA velocity, free PSA, and age-specific PSA. None of these methods have been shown to improve clinical outcome in long-term trials, free PSA may be the most promising test. It may help distinguish between benign prostatic hypertrophy and prostate cancer. The best technique for improving specificity is to combine PSA testing and digital rectal examination. The advantage to this method is that 1 test may detect prostate cancer missed by the other. The probability of prostate cancer based on a normal PSA level (≤4 ng/mL) and a suspicious finding on digital examination is at least 10%.

Guidelines differ in recommendations for prostate cancer screening. The ACS recommends that annual digital rectal examination and PSA testing start when a man is 50 years old, as long as there is a reasonable life expectancy (≥10 years). The USPSTF and the American College of Physicians do not recommend screening. Elderly patients with a reasonable life expectancy should be informed about available screening options for prostate cancer, be encouraged to discuss the risks and benefits, and then be allowed to make an informed decision about whether to proceed with screening. The decision to screen should be based on life expectancy, the presence of comorbidity, quality of life, and the patient’s priorities. Patients who may be candidates for routine screening are black men and those with a family history of prostate cancer. Screening may be performed every 1 to 2 years. Screening probably should be discontinued if the patient’s life expectancy is less than 10 years or after the age of 75 for men with average health.
Uterine Cancer

Uterine cancer, the most common gynecologic malignant condition in the United States, is expected to occur in some 40,300 women in the year 2004. Uterine cancer is divided into cancer of the cervix and cancer involving the body of the uterus. Uterine cancer frequently is detected early, with women noting spotting or irregular bleeding. As a result, of the 39,000 new cases, annual deaths will be limited to 6000. Risk factors for uterine cancer include exposure to estrogen without concomitant progesterone. Women who have the syndrome of hereditary nonpolyposis colorectal cancer (HNPCC) have a high risk for uterine cancer.

The ACS does not recommend routine screening for uterine cancer in healthy women who do not have hereditary syndromes. In women with a high risk of uterine cancer (ie, those with HNPCC), an annual uterine biopsy can be performed. The USPSTF does not directly address this issue.

Ovarian Cancer

Ovarian cancer, the second most common gynecologic malignancy in the United States, will occur in nearly 25,600 women in 2004. Symptoms of ovarian cancer typically occur late in the course of the illness. Abdominal discomfort is often the presenting sign. Risk factors for ovarian cancer are increasing age, nulliparous state, and genetic predisposition. Some women with a strong family history of breast cancer are at risk. Women with genetic risks of HNPCC are also at risk of experiencing ovarian cancer.

Screening for ovarian cancer in asymptomatic women involves 3 different techniques: bimanual pelvic examination, ultrasonography of the ovaries, and use of serum tumor markers such as CA 125. The ACS does not recommend routine screening for ovarian cancer. The USPSTF does not recommend any screening for asymptomatic women at low risk, nor does it make screening recommendations for women at high risk (those with HNPCC or with mutations in BRCA1 or BRCA2 genes). Physicians should talk with these women about the hereditary risks of ovarian cancer and make mutual decisions about screening.

Lung Cancer

Lung cancer is a widespread and devastating illness in both men and women. An estimated 173,800 new cases of lung cancer will be diagnosed in 2004. An estimated 160,400 people will die of lung cancer in 2004, which constitutes approximately 28% of all cancer deaths. Symptoms of lung cancer include recurrent pneumonia, cough, or hemoptysis. Risk factors for lung cancer are cigarette smoking and occupational hazards such as exposure to radon, uranium, and asbestos. Cigarette smoking is by far the most important risk factor.

Despite the recognition of lung cancer as an important and serious illness, routine screening has not been proved effective to date. Screening has included routine chest radiography and sputum cytologic studies. Recently, computed tomographic scanning has been evaluated for screening asymptomatic smokers for lung cancer, and studies are ongoing. Other studies showed that routine chest radiography in smokers did not reduce mortality compared with smokers who were not screened. The USPSTF does not recommend routine screening for lung cancer, even in high-risk groups.

Skin Cancer

Skin cancer is a common form of cancer that will occur in an estimated 1 million persons in the United States in 2004. Of those skin cancers, 95% will be basal cell or squamous cell cancers, both of which rarely metastasize to other organs. Malignant melanoma is the most serious type of skin cancer; it will occur in an estimated 55,100 persons and cause about 7900 deaths in 2004. Risk factors for skin cancer include fair skin, exposure to ultraviolet rays, and family history. The use of sunscreens with a sun protective factor higher than 15 may help prevent skin cancers. Also, limiting exposure to sunlight may be useful.

Screening for skin cancer involves inspection of the skin. The ACS recommends self-examination of the skin by all adults. A health care provider should then evaluate suspicious lesions. The USPSTF neither recommends nor refutes the use of routine screening by primary care providers in high-risk patients. It recommends that all high-risk patients be evaluated by skin cancer specialists for detection and surveillance of possible skin cancers.

IMMUNIZATIONS

Vaccine-preventable infections, primarily influenza and pneumococcal infection, are major causes of morbidity and mortality in elderly persons. Influenza causes an estimated 20,000 deaths each year, and 500,000 cases of pneumococcal pneumonia are estimated to occur annually. The Advisory Committee on Immunization Practices (ACIP)
has recommended for years that all persons aged 65 years or older be vaccinated annually against influenza and that they receive a pneumococcal vaccination unless there is a contraindication to the vaccine.72,73 Despite this long-standing recommendation, in 1999 only 55% of adults older than 65 years had ever received a pneumococcal vaccination, and only 67% had received an influenza vaccination in the preceding 12 months.74

Influenza Vaccine

During the past decade, numerous convincing studies have shown the cost-effectiveness and efficacy of influenza vaccination in persons older than 65 years. A cohort study of more than 60,000 independently living persons aged 65 years or older found that the influenza vaccination reduced hospitalization from pneumonia and influenza by 48% to 57% and overall mortality during the influenza season by 39% to 54%. Influenza vaccination of all persons older than 65 years saved $117, on average, per person per year.75 A large cohort study of more than 120,000 persons aged 65 years or older found a substantial decrease in the number of hospitalizations as well as decreases in deaths in study year 1 by 60% and in year 2 by 35%.76 A randomized, double-blind, placebo-controlled trial of influenza vaccine in elderly persons (≥60 years) found that vaccination diminished the incidence of influenza by 50%.77 A meta-analysis of 20 cohort studies on the efficacy of influenza vaccination in persons older than 60 years was published in 1995. The pooled estimates of this study showed an efficacy for influenza immunization of 56% for preventing respiratory illness, 50% for preventing hospitalization, and 60% for preventing death.78 Convincing studies have shown the safety of the influenza vaccine, including a randomized, placebo-controlled trial of veterans older than 65 years, which showed no significant difference in adverse reactions between the influenza vaccine and placebo in persons given the 1988-1989 influenza vaccine.79 These studies and others provide the scientific basis for the recommendation by the ACIP and other organizations that all persons aged 65 years or older be immunized annually against influenza.

Influenza vaccine is administered during the typical US influenza season from October to early March. Persons at highest risk are those in skilled-care facilities (nursing homes) or in assisted-living centers. All persons in those locations should receive an influenza vaccination unless they have specific allergies to the vaccine. Protocols are in place in many of these locations to ensure adequate compliance. In times of vaccine shortage or delay, prioritization should be made early in the season for high-risk persons. As more vaccine becomes available, all adults older than 50 years should be vaccinated.71

Table 2. Preventive Health Measures for Adults Older Than 65 Years*

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<td>FOBT Flexible sigmoidoscopy (every 5 y) Double-contrast barium enema (every 5-10 y) Flexible sigmoidoscopy with FOBT (every year) Flexible sigmoidoscopy with double-contrast barium enema (every 5-10 y) Colonoscopy (every 10 y)</td>
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*Frequency is every 1-2 y unless otherwise indicated. Screening is discontinued only after input from both physician and patient. FOBT = fecal occult blood test; HDL = high-density lipoprotein; LDL = low-density lipoprotein.

Pneumococcal Vaccine

The efficacy of the pneumococcal vaccine in the elderly population has been a challenging problem for investigators. Because the vaccine has been recommended for all persons older than 65 years in the United States since 1978, placebo-controlled trials are problematic. Multiple case-control studies provide evidence for vaccine efficacy against invasive pneumococcal disease but not against nonbacteremic pneumococcal pneumonia.80-83 A careful case-control study of more than 1000 patients with a documented vaccine history and positive cultures of Streptococcus pneumoniae from normally sterile sites found the overall effectiveness of the vaccine to be 56%. Vaccine efficacy decreased with increasing age, and the loss of efficacy was most pronounced in those older than 84 years.84 A large indirect cohort study85 evaluated the effectiveness of the vaccine in preventing serious pneumococcal infection caused by serotypes included in the vaccine. That study looked at selected populations at risk for serious pneumococcal infection and found an efficacy rate of 75% for immunocompetent persons older than 65 years.

Several studies have estimated the cost-effectiveness of the pneumococcal vaccine in elderly persons.86-87 One such
trial, with assumptions unfavorable to vaccination, reported savings of $8.27 and 1.21 quality-adjusted days of life per person vaccinated. It was estimated that vaccination of the 23 million unvaccinated elderly persons in 1993 would have gained them 78,000 years of healthy life and saved $194 million.86

Concerns have been raised about the safety of revaccinating patients in whom an immunization history is unclear or those older than 65 years who received their vaccine before age 65 years. The ACIP recommends that all persons aged 65 years or older be revaccinated if they received their vaccine 5 or more years earlier and were younger than 65 years at the time of the primary vaccination.73 Available studies show that revaccination after at least 5 years is safe and that reactions occur with similar frequency to that seen with primary immunization.88-90

Tetanus
Tetanus deserves special mention because the elderly population has a considerably higher risk of acquiring the disease.91 The tetanus vaccine was not routinely administered to children before the 1940s; therefore, many elderly persons never received a primary series and are at increased risk of infection.92 Older adults should undergo the full primary series of 3 immunizations if there were no previous vaccinations. A single booster dose should be given to older adults every 10 years. A booster dose should be provided if a serious injury occurs and the last vaccination had been given more than 5 years previously.

Travel/ Other Immunizations
Most of the other available vaccines should be administered to elderly persons for the same indications as for the general adult population. Elderly travelers are at increased risk of serious illness and death from both hepatitis A and typhoid fever compared with younger travelers.93 These infections are common in underdeveloped countries, and the vaccines are well tolerated. The Centers for Disease Control and Prevention has a travelers’ health Web site, www.cdc.gov/travel/, which recommends specific vaccines for those traveling to various areas around the world.

Yellow fever deserves special attention because cases of serious illness after vaccination were reported recently to the Centers for Disease Control and Prevention. The illness began 3 to 9 days after vaccination; all 4 patients involved were aged 63 years or older, and 3 of the 4 died.94 An analysis of data from the Vaccine Adverse Events Reporting System showed that persons aged 65 to 74 years were 5.8 times more likely to experience serious adverse events after vaccination than were those aged 25 to 44 years; patients aged 75 years or older had an 18-fold increased risk.95 The yellow fever vaccine, a live, attenuated virus vaccine, generally is contraindicated in patients with serious immunosuppression. The reports call for care when vaccines are recommended for older travelers. The risk of a traveler developing yellow fever, an extremely serious and potentially fatal infection, must be weighed against the possibility of the traveler experiencing a serious adverse reaction to the vaccine. However, elderly travelers also are at increased risk of severe disease and death after infection by the naturally occurring virus. The decision of whether a person older than 65 years should receive the yellow fever vaccine probably should be made by health care providers who are familiar with travel and tropical medicine issues and who have experience with administering this vaccine.

Conclusions
Appropriate immunization of elderly persons, including the healthy aging population, those who are institutionalized, and those with a chronic illness, will prevent suffering and save lives. We strongly recommend annual influenza vaccination for all persons older than 50 years, a single pneumococcal vaccination for persons older than 65 years, and appropriate tetanus immunization for all adults.

ADVANCE DIRECTIVES
Advance directives, such as a living will and a durable power of attorney for health care and resuscitation status, are important documents for older adults and can be helpful for health care providers. Administrative changes from the Joint Commission on Accreditation of Healthcare Organizations have led to an increased use of advance directives.96 The Joint Commission now requires that adult patients be given information about advance directives and be asked about their wishes and desires for health care. Efforts should be made to explain the various options for advance directives to older adults. We specifically recommend the appointment of a durable power of attorney for health care. In the event that the older adult cannot make decisions, the designated individual would be able to make decisions regarding the patient’s health care.

AGING POPULATION
Perceiving life expectancy as a relationship between age and functionality is at the heart of our recommendations for screening and prevention in the elderly population. Clinical judgment is important in estimating life expectancy in a given individual. The National Center for Health Statistics distributes the National Vital Statistics Report, which lists life expectancies for the sexes and races. Although white people tend to live longer than black people, the difference in life expectancy decreases with advancing age. The average life expectancy for an individual at age 85 years is 6.3 years, and it is more than 5 years for both men and

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women. The health care provider must help the individual make decisions about screening and prevention and should estimate an individual life expectancy and not an average one.

SUMMARY
Preventive health continues to be important in older adults. All older adults should strive for optimal quality of life and maintenance of functionality. When to discontinue screening is a major source of controversy and will likely remain so in the future. We believe screening and counseling should continue as long as the individual has a good quality of life and a reasonable life expectancy. Certainly, initiation of preventive services should involve discussion between the patient, physician, and often family members.

REFERENCES


96. Joint Commission on Accreditation of Healthcare Organizations. Standards most likely to result in type 1 recommendations. Ambulatory Care Advisor. 2001;2.


The Symposium on Geriatrics will continue in the April issue.