SCREENING TESTS FOR THE ELDERLY
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QUESTION: In elderly patients, what are recommended screening techniques, when should screening stop and how should comorbidities modify screening recommendations?

LITERATURE SUMMARY:

To address screenings for the elderly population, we searched the US Preventive Service Task Force (USPSTF) website, CDC website on influenza and vaccination, National Comprehensive Cancer Network (NCCN) Clinical Practice guidelines in Oncology, National Guideline Clearinghouse, and National Institute of Health Departments. We also referenced major professional medical associations in regard to clinical practice guidelines in each specialty. Searches are limited to US and Canadian clinical guidelines.

Several government agencies provide reputable guidelines for preventive services based on age in chart/table format; we included links to those charts with this summary. Of note, the Institute for Clinical Systems Improvement (ICSI) recommended that the following preventive services are worthy of attention at every visit: Colorectal cancer screening, hypertension screening, influenza immunization, pneumococcal immunization, problem drinking screening and brief counseling, vision screening, cervical cancer screening, total cholesterol and HDL cholesterol, breast cancer screening, and calcium chemoprophylaxis counseling. The following preventive services should be provided whenever possible: Obesity screening, depression screening, hearing screening, osteoporosis screening, and abdominal aortic aneurysm screening for men who ever smoked.

In the table below, screening recommendations for geriatric patients in primary care settings are grouped into the following sections: Regular tests, cancer screening, disease and conditions, immunization record checking, and geriatric syndrome assessment. A brief outline of recommendations and suggested screening methods and intervals are provided as available.

Comorbidities are common for elderly patients. Coexistence of other diseases may alter the screening intervals, and suggest more screening tests. In some situations, comorbidities and advanced age may outweigh the advantages of screening. The effects of comorbidities on the screening recommendations are listed in the table with each screening test. Screening tests for elderly persons with cancer, diabetes, cardiovascular diseases, and Parkinson disease are listed below the summary table.

<table>
<thead>
<tr>
<th>Screening Recommendations for Persons ≥65 years</th>
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<tr>
<td><strong>Common Screening Tests</strong></td>
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<tr>
<td>- In those older than age 50, systolic blood pressure (BP) of greater than 140 mm Hg is a more important cardiovascular disease (CVD) risk factor than diastolic BP</td>
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<td>- beginning at 115/75 mm Hg, CVD risk doubles for each increment of 20/10 mm Hg</td>
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<td>- Those who are normotensive at 55 years of age will have a 90% lifetime risk of developing hypertension</td>
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<td>- Interval: At least every 2 years for adults with DBP below 85mmHg and SBP below 130mmHG, and more frequent intervals for screening those with blood pressure at higher levels.</td>
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Comorbidities affecting treatment:

- Once antihypertensive drug is initiated, follow up are suggested 1-2 times/year. Comorbidities, such as heart failure, associated diseases such as diabetes, and the need for laboratory tests influence the frequency of visits.
- Antihypertensive drugs can have favorable or unfavorable effect on other comorbidities.
## Blood Glucose

*American Diabetes Association (ADA). Standards of Medical Care in Diabetes (2007)* [Full Text]

- Recommend to detect pre-diabetes (IFG or IGT) and diabetes for individual ≥ 45 years of age, particularly those with a BMI ≥ 25 kg/m².
- Repeat testing at 3-year interval
- Screening for pre-diabetes or diabetes with either Fasting plasma glucose (FPG) test or 2-h OGTT (75-g glucose load) or both are appropriate.
- It is recommended that screening for the comorbidities and complication of diabetes, including fasting lipid profile, and urine for microalbumin, be obtained at the time of diagnosis of type 2 diabetes.

*US Preventive Services Task Force (USPSFT). Screening for Diabetes Mellitus, Adult type 2. (Feb 2003)* [Full Text]

- Recommend screening for type 2 diabetes in adults with hypertension or hyperlipidemia and no screening for asymptomatic adults for type 2 diabetes
- Concluded that evidence is insufficient to recommend for or against routinely screening asymptomatic adults for type 2 diabetes, impaired glucose tolerance, or impaired fasting glucose.

## Cholesterol/Lipids

*USPSTF: Screening for Lipid Disorders in Adults. (March 2001)* [Full Text]

- Recommend an initial screening in older people who have never been screened, but repeated screening is less important in older people because lipid levels are less likely to increase after 65 years.
- Recommend elderly with Diabetes, elevated blood pressure, and smoking should be screened

*Institute for Clinical Systems Improvement (ICSI). Lipid screening in adults. (Jun 2004)* [Full Text]

- Screening men over age 34 and women over age 44 every 5 year;
- For people over 75 years screening decision should based on individual preferences of patient and provider
- There is no upper age cutoff for management of lipids.
- People with LDL > 130 mg/DL; HDL < 40mg/DL, or triglycerides > 200 mg/DL are recommended to start clinical management or therapy.

## Osteoporosis/Bone Mineral Density (BMD)

*USPSTF: Screening for Osteoporosis. (Released Sep. 2002)* [Full Text]

- Recommend women aged 65 and older be screened routinely for osteoporosis, regardless of additional risk factors.
- Recommends routine screening begin at age 60 for lower body weight (less than 154 pounds) people for osteoporotic fractures.


- All postmenopausal women with medical cause of bone loss and all postmenopausal women aged 65 and older should have BMD testing.
- If current smoking, when doing BMD testing, DXA is the preferred technique. That is measuring the total hip, femoral neck, and posterior-anterior lumbar spine, and using the lowest of the three BMD scores.

*American Medical Director Association (AMDA). Guideline on Osteoporosis. (2003)* [Guideline Link]

- Recommend measure BMD in men age ≥70 years.

## Diseases & Conditions

**Visual problems**


- Comprehensive adult eye and vision examination should include systemic health screening tests (eg. Blood pressure measurement, carotid artery assessment, blood glucose level screening, cranial nerve assessment)
- Recommends yearly eye examination for people 61 years and older.
- Comorbidities: Patient with diabetes, hypertension, a family history of ocular disease, those taking
prescription or nonprescription drugs with ocular side effects, those wearing contact lenses are recommended to have more frequent re-examination.

*USPSTF.*
- Update of the 1996 recommendation is in progress.

### Abdominal Aortic Aneurysm

*USPSTF. Screening for Abdominal Aortic Aneurysm.* [Full Text] (Feb 2005)
- Recommends one-time screening for abdominal aortic aneurysm (AAA) by ultrasonography in men aged 65 to 75 who have ever smoked
- Recommend against routine screening for AAA in women

### Diabetes

*American Diabetes Association. Screening for Type 2 Diabetes.* (2004) [Full Text]
- Age 45 years and older should consider diabetes screening every 3 years, particularly those with a body mass index greater than 25kg/m².
- FPG is the recommended screening test, because it is faster, easier to perform, more convenient, acceptable to patients, and less expensive.
- There is insufficient evidence to conclude that screening outside of health care settings, or community screening, is a cost-effective approach. This type of screening is not recommended.

*USPSTF. Screening for Type 2 Diabetes Mellitus in Adults: Recommendations and rationale.* (2004) [Full Text]
- Good evidence that available screening tests can accurately detect type 2 diabetes during an early, asymptomatic phase.
- Insufficient evidence to recommend for or against routinely screening asymptomatic adults for type 2 diabetes, impaired glucose tolerance, or impaired fasting glucose.
- Adults with hypertension (high blood pressure) or hyperlipidemia (high cholesterol) should be screened for type 2 diabetes.

*Canadian Task Force on Preventive Health Care. Screening for type 2 diabetes mellitus to prevent vascular complications.* (2005) [Full Text]
- There is fair evidence to recommend screening adults with hypertension for type 2 diabetes mellitus to prevent cardiovascular events and death (grade B recommendation).
- There is fair evidence to recommend screening adults with hyperlipidemia for type 2 diabetes to prevent cardiovascular events and death (grade B recommendation).
- There is good evidence to recommend lifestyle interventions for overweight individuals (body mass index > 25 kg/m², or > 22 kg/m² if of Asian descent) with impaired glucose tolerance to reduce the incidence of progression to diabetes (grade B recommendation).

### Thyroid Disease

- Recommends that TSH level be checked in adults 35 and every 5 years thereafter. More frequent screening may be appropriate in individuals at higher risk.
- Serum TSH assay is an accurate, widely available, safe, and relatively inexpensive diagnostic test for all common forms of hyperthyroidism and hypothyroidism.

*USPSTF: Screening for Thyroid Disease (Released 2004)* [Full Text]
- Concluded the evidence is insufficient to recommend for or against routine screening for thyroid disease in adults.

**Immunization**
### Immunization

**CDC Adult Immunization Schedule (2006)** [Full Text]
- Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination. Tdap is not licensed for use among adults aged > 65 years. Adults aged > 65 years should receive a dose of Td every 10 years for protection against tetanus and diphtheria and as indicated for wound management. [CDC Vaccine Information Statement, 2006]
- Pneumococcal polysaccharide vaccine (PPV). One-time revaccination if they were vaccinated > 5 years previously and were aged < 65 at the time of primary vaccination. [CDC Vaccine Information Statement for PPV, 1997]
- Vaccination with inactivated influenza vaccine: People 50 years of age and older and people who live in nursing homes and other long term care facilities should get vaccinated each year. [CDC influenza fact sheet, 2006]

**Advisory Committee on Immunization Practices (ACIP) Provisional Recommendation for the Use of Zoster vaccine.** (Oct. 2006) [Full Text]
- Herpes zoster vaccine: is approved as a single dose for persons who are aged ≥60 years weather or not they reported a prior episode of herpes zoster.

### Cancer Screening

#### Mammography/ Breast Cancer

**USPSTF: The Cost-Effectiveness of Screening Mammography Beyond Age 65. (2003)** [Full Text]
- Concluded that biennials breast mammography screening after age 65 reduces mortality at reasonable costs for women without significant comorbidity.
- Comorbidities: Screening becomes more costly and harmful for women with dementia and other comorbidities that limit life-expectancy to around age 85

**American Cancer Society (ACS). Guidelines for Breast Cancer Screening: Update 2003.** [Full Text]
- Asymptomatic women aged 40 and over should receive a clinical breast examination as part of a periodic health examination, preferably annually.
- For older women, as long as they are in reasonably good health and would be a candidate for treatment, should continue to be screened with mammography.
- Comorbidities: For patient with estimated life expectancy of less than three to five years, severe functional limitations, and/or multiple or severe comorbidities should stop screening.

- All women should have a clinical breast exam annually as part of the physical examination
- Breast self-examination has the potential to detect palpable breast cancer and can be recommended
- Women over age 50 should have annual screening mammography.

#### Cervix Cancer

**USPSTF: Screening for Cervical Cancer. (2003)** [Full Text]
- Recommends against screening women older than 65 for cervical cancer if they have had adequate recent screening with normal pap smears and not otherwise at high risk for cervical cancer.

- For the elderly, cervical screening should be performed annually with conventional cervical cytology smears or every 2 years using liquid-based cytology.
- Comorbidities: Cervical cancer screening is not indicated for women after total hysterectomy for benign gynecologic disease. Women who have had a subtotal hysterectomy should continue cervical cancer screening as per current guidelines.
- Women with comorbid or life-threatening illnesses may forego cervical cancer screening.
- Women at age 70 and older with normal cytology test within the 10 year period prior to age 70 may elect to
<table>
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<tr>
<th>Cancer Type</th>
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<tr>
<td>Colorectal Cancer</td>
<td>NCCN. Colorectal Cancer Screening. (2007)</td>
<td>People age 50 and older with average risk (no history of adenoma and IBD, a negative family history) should be screened. Preferred screening method is colonoscopy, repeated in 10 years. Alternative screening methods are FOBT (60cm scope or longer) annually and flexible sigmoidoscopy every 5 years. For increased risk patients, the repeat interval is shortened.</td>
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<td>American Society for Gastrointestinal Endoscopy. ASGE guideline: Modifications in endoscopic practice for the elderly. (2006)</td>
<td>Concluded that endoscopic practice for the elderly is safe and can continue to be screen till 80 years of age as long as there is no life threatening comorbidities. Comorbidities: Colonoscopic screening and surveillance for patients of advanced age should be individualized on the basis of general health and comorbid medical illness.</td>
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<td></td>
<td>Institute for Clinical System Improvement (ICSI). Colorectal cancer screening. (2006)</td>
<td>Recommends screening for people 50 to 80 years old or if African American 45- 80 years. The following methods and intervals are recommended: Flexible sigmoidoscopy or colonoscopy every 5 years, Annual FOBT, Combination of flexible sigmoidoscopy or colonoscopy every 5 years and annual FOBT.</td>
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<tr>
<td>Ovarian Cancer</td>
<td>USPSTF. Screening for Ovarian Cancer. (May 2004)</td>
<td>Against the routine screening of ovarian cancer for women aged 65 and up.</td>
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<tr>
<td>Prostate Cancer</td>
<td>NCCN. Prostate Cancer Early Detection (2006)</td>
<td>Recommend regular screening at age 50. Digital rectal examination (DRE) and Prostate-specific antigen test (PSA) are the common screening tests. Percent free PSA is recommended in selected patients where the diagnosis and treatment is outweighed by comorbid conditions. For patient older than 75 with serious health problems, PSA does not gain much.</td>
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<td></td>
<td>ACS. American Cancer Society Guidelines for the Early Detection of Cancer (2003)</td>
<td>For men who have a life expectancy of at least 10 years, PSA test and DRE should be offered annually.</td>
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<td></td>
<td>USPSTF. Screening for Prostate Cancer: Recommendations and Rationale (2003)</td>
<td>USPSTF concluded that the evidence is insufficient to recommend for or against routine screening for prostate cancer using PSA testing or DRE. Men aged 50 – 70 years who are at average risk and men older than 45 who are at increased risk (African-American men and men with a family history of a first-degree relative with prostate cancer) may benefit from early detection. Older men and men with other significant medical problems who have a life expectancy of fewer than 10 years are unlikely to benefit from screening.</td>
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<tr>
<td>Geriatric Syndromes</td>
<td>American Geriatrics Society: Guideline for prevention of Falls in Older Persons. (2001)</td>
<td>All older persons who are under the care of a health professional should be asked at least once a year about falls. All older persons who report a single fall should be asked to do “get up and go test”. Further assessment is needed for persons who have difficulty to perform this test.</td>
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### Dementia

**USPSTF: Screening for Dementia: Recommendation and Rationale. (2003) [Full Text]**

- There is insufficient evidence to recommend for and against routine screening for dementia in older adults.
- Although current evidence does not support routine screening of patients in whom cognitive impairment is not otherwise suspected, clinicians should assess cognitive function whenever cognitive impairment or deterioration is suspected, based on direct observation, patient report, or concerns raised by family members, friends, or caretakers.
- The accuracy of the mini-mental status examination (MMSE) depends on person’s age and educational level; functional activities questionnaire (FAQ) can detect dementia with sensitivity and specificity comparable to MMSE.


### Sleep Disorders

**American Association of Sleep Medicine. Practice Parameters for insomnia. (2000) [Full Text]**

- Healthcare practitioner should screen patients for symptoms of insomnia during health examinations, especially for certain populations, including the elderly and women, which may be at higher risk.

### Depression

**USPSTF: Screening for Depression in Adults. (2002) [Full Text]**

- Recommends screening adults for depression in clinical practices that have system in place to assure accurate diagnosis, effective treatment, and follow-up.
- Optimal interval for screening is unknown. Recurrent screening maybe most productive in patient with a history of depression, unexplained somatic symptoms, comorbid psychological conditions.

*American Geriatrics Society and American Association for Geriatric Psychiatry. Consensus Statement on Improving the Quality of Mental Health Care in US Nursing Homes: Management of Depression and Behavioral Symptoms Associated with Dementia (2003) [Full Text]*

- Screening for depression should be conducted 2-4 weeks after admission and repeat every 6 months.
- Self report Geriatric Depression Scale or Beck Depression Inventory are suitable for residents with mild to moderate impairment; whereas observer-rated scales, such as the Cornell scale, are better for residents with moderate to severe dementia.

### Cancer:

**NCCN. Clinical Guidelines in Oncology. Senior Adult Oncology. (2007) [Full Text]**

The following screening tests should be used in the management of older patients with cancer.
- Frailty screening test developed by cardiovascular health study (CHS) include 5 simple tests: weight loss, exhaustion, physical activity, walk time, and grip strength
- Mobility test, the “time up and go” (TUG) test.
- Geriatric functional screening test developed by Lachs which quickly assess many areas including vision, hearing, arm/leg mobility, urinary incontinence, nutrition, mental status, depression, ADL-IADL, home environment, and social support.
- Distress Thermometer developed by NCCN Distress Management Panel

### Diabetes:

**American Geriatrics Society. Guidelines for improving the care of the older person with diabetes mellitus. (2003) [Full Text]**

Recommend the following screenings, tests or consoling should be done on every visit or annual visit:
- Smoking counseling and offer pharmacological interventions to assist with smoking cessation
- Older adults with DM should have A1C level measured at least every 6 month or more as needed; for persons with stable A1C over several years, measurement every 12 month may be appropriate
- Polypharmacy check: Clinicians should carefully review each medication older adults currently taking during the initial visit and at each subsequent visit; counsel the patient to take medication properly.
- Eye care: Higher risk elderly should have an initial screening dilated-eye examination and annually thereafter. Persons at lower risk may be screened at least every 2 years.
- Foot care: annual careful foot examination to check skin integrity, bony deformity, loss of sensation, or decreased perfusion.
- Nephropathy: After the initial screening for microalbuminuria and in the absence of previously demonstrated macro- or microalbuminuria, the screening test should be performed annually for type 2 diabetes patients; for patients with type 1 diabetes, the screening should begin after 5 years after diagnosis.
- Depression: Patient should be screened during the initial evaluation period. Access the patient using a two-question screen or a standardized screening tool, such as the Geriatric Depression Scale.
- Cognitive Impairment: clinician should assess the older adult with DM for cognitive impairment using a standardized screening instrument during initial evaluation period.
- Urinary incontinence: Older adults should be evaluated for symptoms of Urinary incontinence during annual screening.
In addition, American Diabetic Association (2004) suggests to measure blood pressure at every routine diabetes visit, and test for lipid disorders at least annually and more often if needed. [Full Text]

Cardiovascular Disease and Depression:
- Concluded the 2-item screening tool from the Patient Health Questionnaire (PHQ-2) is recommended to identify currently depressed patients within a CVD population.
- Also found that Beck Depression Inventory (BDI) is an accurate screening tool for DSM-IV major depressive disorder in patients after MI.

Parkinson Disease:
- Recommended BDI-1 and HDRS be considered for depression screening in PD.
- Concluded that there is insufficient evidence to support or refuse PPRS as a screening tool for psychosis in PD.
- Suggested that MMSE and CAMCog are useful screening tools for dementia in patient with PD.

REFERENCES:
1. AHRQ Adult Preventive Care Timeline: PDF version, TeTextxt version
2. AAFP Recommended clinical preventive services for adult men (2006): PDF version
   AAFP Recommended clinical preventive services for adult women (2006): PDF version
3. CDC Recommended Adult Immunization Schedule, United States, October 2006 - September 2007: PDF version

RESOURCES CONSULTED:
US Preventive Service Task Force (USPSTF) website, CDC, National Comprehensive Cancer Network (NCCN) Clinical Practice guidelines in Oncology, National Guideline Clearinghouse, Up To Date, PubMed, Cochrane Database of Systematic Reviews, American Diabetes Association, American Cancer Society, National Institute of Health, North American Menopause, American Geriatrics Society, American Optometric Association, Institute for Clinical Systems Improvement, etc.

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