Preventive Gerontology and Geriatrics

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• Screening for cancers
• Other screening tests
• Healthy lifestyle counseling
• Geriatric health issues
• Immunization
• Chemoprophylaxis
Introduction

• The success of disease prevention strategies over the last century, coupled with more effective treatments for many diseases, has resulted in a decline in mortality due to acute disease.

• Preventive gerontology must now aim not just to retard chronic disease but also to prevent functional decline.
Aging and health

• Aging is a lifelong process in which early- and mid-life events and behaviors can have an important influence on the health and function of individuals as they age.

• Development of chronic disease, functional decline, and loss of independence are not inevitable consequences of aging.
• **Chronic disease**, is unlikely to have a single cause but rather, to be the result of the interactions of **multiple factors**.

• Efforts to prevent such disease **require a comprehensive approach** that focuses primarily on **behavioral modification**.
What is healthy lifestyle

- Individuals who pursue a healthy lifestyle have a lower risk of developing a chronic disease.
- A healthy lifestyle can be conceptualized as one that involves avoidance of health-damaging behaviors along with the adoption of a proactive approach to one’s health.
Cancer Screening Tests
Benefit of Cancer Screening

• Some of cancer screening methods can help to reduce mortality in experienced subjects by early detecting of cancers.
Harms of Screening Tests

• Complications from screening or diagnostic methods,
• Reassurance from false-negative test results or
• Detecting of diseases that would not have clinical significance during a patient's lifetime and also psychological distress
Biases of Screening Tests

• **Lead time bias:** screening results earlier identification of diseases without altering the time of death.

• **Length bias:** Screening increases the number of identified clinically slowly progressive or non-progressive disease.

• **Selection bias:** The observations only show the result of willing populations not general population.
Breast Cancer

• The AGS recommended that screen mammography every 1-2 years for women with \( \geq 5 \) years remaining life expectancy up until age 85 years and after that for older women with excellent health and functional status or for older women who feel strongly that mammography will be benefit them.

• In some RCTs no benefit was detected for self exam and breast clinical exam among older adults.
Colon Cancer

- Adenomatous polyps developed in 30%-50% of subjects >50 years.
- Colonoscopy has been recommended every 10 years for all people with age 50-75 years with home-based high-sensitive fecal occult blood test (FOBT) annually.
- Other type of recommendation is that flexible sigmoidoscopy every 5 years with the FOBT every 3 years.
- Air-contrast barium enema is not used commonly as screening method because of low sensitivity.
Colon Cancer (Cont.)

• Colonoscopy is the most sensitive and cost-effective screening test that its sensitivity is similar to flexible sigmoidoscopy.

• Serious complications of colonoscopy occur in 25 per 10000 and higher for older adult.

• The United States Preventive Services Task Force (USPSTF) recommends against routinely screening adults ≥ 75 years old and ever adults ≥ 85 years old because the risks outweigh the benefits.
Cervical Cancer

• Guidelines recommend stopping cervical cancer screening for women 65-70 years old who have been previously screening are not otherwise at high risk of cervical cancer.

• An older woman of any age who has never had Pap smear, should be screened with at least two Pap smear 1 year apart.

• If the risk factors the development of cervical cancer is existed, (new sexual partner) should be assessed on an ongoing basis and take into consideration when deciding how often and how long to screen older woman for development cervical cancer.
• There is huge controversial data about the benefit prostatic cancer.

• American Cancer Society and American Urological Society recommend that clinicians discuss the potential benefits of PSA screening (modest reduction of morbidity and mortality from Prostatic Cancer) and the possible harms (false positive results, unnecessary biopsies, over diagnosis, overtreatment, and possible complications of treatment among of men ≥ 50 years with at least 10 years life expectancy.

• The USPSTF recommend against PSA based screening for prostatic cancer regardless of a man’s age.
Other Cancers

• The USPSTF state that there is insufficient evidence to recommend whole body skin examination by primary health care clinicians for early detection of skin cancer.

• Screening for ovarian cancer with CA-125 and trans vaginal ultrasound did not reduce ovarian cancer mortality.
Other Screening Test
Thyroid Disease

• Because of low cost, noninvasive of screening, the increasing risk of subclinical and clinical hypothyroidism and hyperthyroidism with age, and the low risks of treatment (particularly for hypothyroidism) screening older adults for thyroid dysfunction by measurement of thyroid stimulating hormone (TSH) every 2-5 years is recommended by clinical expert among ≥ 60 years.

• Instead the USPSTF state that clinicians should be alert about subtle or nonspecific of thyroid dysfunction.
• Strong indirect evidence supports screening for hypertension among older people.

• Evidence is lacking to recommend an optimal interval for screening adults for hypertension and recommendation range from as frequency as each visit to biennially (for those with blood pressure less than 120/80 mmHg).
Criteria for testing for diabetes in asymptomatic adult individuals

1. Testing should be considered in all adults who are overweight (BMI ≥ 25 kg/m²*) and have additional risk factors:
   • physical inactivity
   • first-degree relative with diabetes
   • high-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
   • women who delivered a baby weighing > 9 lb or were diagnosed with GDM
   • hypertension (≥ 140/90 mmHg or on therapy for hypertension)
   • HDL cholesterol level < 35 mg/dL (0.90 mmol/L) and/or a triglyceride level > 250 mg/dL (2.82 mmol/L)
   • women with polycystic ovarian syndrome
   • A1C ≥ 5.7%, IGT, or IFG on previous testing
   • other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
   • history of CVD

2. In the absence of the above criteria, testing for diabetes should begin at age 45 years.

3. If results are normal, testing should be repeated at least at 3-year intervals, with consideration of more frequent testing depending on initial results (e.g., those with prediabetes should be tested yearly) and risk status.

*At-risk BMI may be lower in some ethnic groups.
Criteria for the diagnosis of diabetes

- A1C > 6.5%. The test should be performed in a laboratory using a method that is National Glycohemoglobin Standardization Program (NGSP) certified and standardized to the DCCT assay.*
- FPG > 126 mg/dL (7.0 mmol/L). Fasting is defined as no caloric intake for at least 8 h.*
- Two-hour PG > 200 mg/dL (11.1 mmol/L) during an OGTT. The test should be performed as described by the WHO, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.*
- In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose > 200 mg/dL (11.1 mmol/L).
Consider BMD testing in the following individuals:

- Women age 65 and older and men age 70 and older, regardless of clinical risk factors
- Younger postmenopausal women, women in the menopausal transition and men age 50 to 69 with clinical risk factors for fracture
- Adults who have a fracture after age 50
- Adults with a condition (e.g., rheumatoid arthritis) or taking a medication (e.g., glucocorticoids in a daily dose \( \geq 5 \) mg prednisone or equivalent for \( \geq \) three months) associated with low bone mass or bone loss
Abdominal Aortic Aneurism

- Abdominal aortic aneurism (AAA) is detected in 4-8% of older men and < 2% in older women.
- Most of individual with this problem are asymptomatic to complicated.
- One third of AAAs rupture finally.
- In meta-analysis surgical repair of those AAA ≥ 5.5cm associated with decrease of AAA-related mortality but no all-cause mortality.
- USPSTF concluded that balance between the benefits and the harms too close to make a general recommendation.
- USPSTF recommended about screening of men 65-75 years who have ever smoked. But not have any recommendation about older women.
• Fewer people >75 years of age were included in the statin RCTs reviewed. **RCT evidence does support the continuation of statins beyond 75 years of age in persons who are already taking and tolerating these drugs.**

• A larger amount of data supports the use of moderate-intensity statin therapy for secondary prevention in individuals with clinical atherosclerotic cardiovascular disease (ASCVD) >75 years of age.

• The few data available did not clearly support initiation of high-intensity statin therapy for secondary prevention in individuals >75 years.

• In general screening for dyslipidemia recommend every 5 years for older people with shorter intervals for people who have lipid levels close to warning therapy.
Healthy Lifestyle Counseling
Physical Activity

• Aerobic exercises with moderate intensity of ≥ 150 minutes/week or ≥ 75 minutes/week of vigorous intensity spread throughout the week.
• Muscle strengthening exercises are recommended to older people at least 2 time for 30 minutes/week
• Flexibility exercise 10 minutes/day and balance training exercise such as backward waking, heal-to-toe walking, Tai Chi and standing on one foot ≥ 3 days a week.
Alcohol Misuse

- Probability of alcohol-medication interaction increase among older people.
- Expert clinicians recommended to reduce alcohol use in elderly.
Smoking Cessation

- Smoking cessation at any age decreases the rate of COPD, many cancers, and coronary artery disease.
- Every aged should be consulted to quit the smoking and follow-up in person or by phone within 3-7 days of quit and monthly for 3 months is effective.
Sexual Dysfunction and Sexual Transmitted infections

• A recent cost-effectiveness analysis found that one-time HIV screening is cost-effective for older people 65-75 years old in US.

• It is recommended for populations that test population has HIV prevalence ≥ 0.1%
Geriatric Health Issues
• A Comprehensive Geriatric Assessment is recommended for frail older adults new to primary care practice to reduce risk of functional decline.
• 30-40% of non-institutionalized older adults fall each year and increase with increasing of age.

• Extrinsic factors include poor lighting, obtrusive furniture, inadequate footwear, slipping floor, loose floor coverings and bathroom without handrails or grab bars.

• Assessment with the FRAX is recommended for all older adults.

• Certain primary-care based interventions (eg, exercise and physical therapy, vitamin D supplementation have been shown to reduce falling among community-dwelling older adults.
Cognitive Status

• USPSTF concluded that evidence is insufficient to recommend screening older adults for dementia.

• American Geriatric Society does not recommend routine screening but does recommend testing older adults with mild cognitive impairment for dementia because of their increased risk of developing the disease.
Incontinence

• Incontinence is estimated to affect 30%-60% of older adults.
• Only 30%-45% of women with incontinence seek treatment.
• Because this high prevalence of undiagnosed incontinence, older women should be specially asked about urinary incontinence as a routine systems review.
Prevalence of a major depression is 1% - 2% and dysthymia is 2% and subsyndromal depression is 13% - 27% among community dwelling older adults.

USPSTF recommends that clinician screen older adult for depression as long as they work in practice setting.

GDS-30 or GDS-15 or one question “over past 2 week have you felt down, depressed or hopeless” are effective screening tools.
• Estimated that 8.8% of people ≥ 60 years has impaired visual acuity (VA ≤ 20/40 with best correction).

• Most common causes are presbyopia, cataract, glaucoma, diabetes retinopathy and age-related macular retinopathy.

• USPSTF found insufficient evidence to recommend for or against visual acuity screening by primary health care clinicians.
The prevalence of hearing loss is 20% - 40% in adults ≥ 50 years old and more than 80% for those ≥ 80 years old.

May screening for hearing loss with golden standard method (Pure-tone audiometry) or whispered voice test (75% PPV) is reasonable.
Nutrition

• Weight of older adult should be obtained each visit, height should be measured annually with BMI calculation.

• USPSTF recommends that obese old adults be offered intensive counseling and behavioral intervention.

• Under nutrition is common among older adults (at least 15%) because of some extrinsic and intrinsic factors.
Mistreatment of Older Adults

• The prevalence of mistreatment among older adult varies among the communities. In US the prevalence was reported from 3% - 8%.

• These older adult should be asked about mistreatment: who has present with contusion, burns, bite marks, genital or rectal trauma, pressure ulcer or BMI $\leq 17.5$kg/m$^2$. 
Safety and Preventing Injury

- Detector of smoke and carbon monoxide
- Water heat < 45°C
- Drinking enough water and cool beverages in summery
- Air conditioner appropriate
- Wear seat belts
- Regular driving test
Immunization
• Annual Influenza vaccination for adults ≥ 50 years
• One pneumococcal vaccination after 64 years.
• The dT booster recommends 10 years.
• Herpes Zoster vaccine recommends for every body ≥ 60 years.
• Hepatitis vaccine is recommended for community with high prevalence of this disease.
Aspirin

• Aspirin therapy (100mg q 48h-500mg q 24h) reduce the risk of cardiovascular event by 12% and stroke by 17% but no has significant effect on cardiovascular mortality among women.

• Among men, it decreases risk of cardiovascular event by 14% and myocardial infarction by 32% but no has effect on risk of stroke or cardiovascular mortality.

• Aspirin therapy increases risk of bleeding by 70%.
Aspirin (cont.)

• The USPSTF recommends aspirin primary prevention for men with a 10-years risk of coronary heart disease of ≥ 4% for age 45-59 years, ≥ 9% for those aged 60-69 years, ≥ 12% for aged 70-79% and for women with 10-year stroke risk ≥ 3% for aged 55-59 years, ≥ 8% for those aged 60-69 years, and ≥ 11% for those aged 70-79 years
Calcium, Vitamin D, and Multivitamin

• The previous recommendations was to prescribe vitamin D (600IU to 4000 IU) and calcium 1000-1200mg per day.

• In 2013 the USPSTF concludes that the current evidence is insufficient to assess the balance of the benefits and harms of combined vitamin D and calcium supplementation for the primary prevention of fractures in premenopausal women or in men.

• The USPSTF has concluded that vitamin D supplementation is effective in preventing falls in community-dwelling adults aged 65 years or older who are at increased risk for falls.
Hormone Therapy

The hormone therapy is not recommended at present because increase risk of ischemic stroke, venous thrombosis, pulmonary embolism, decrease cognitive function and invasive breast cancer among older women.