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A Resource for Interprofessional Providers

Disease Screening in Older Adults: When to Stop

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National organizations, such as the US Preventive Services Task Force (USPSTF), have published recommendations for screening adults for a variety of diseases, based on a consideration of whether screening will lead to improved outcomes. Many of these recommendations are aimed at diseases that are common in older adults. While the USPSTF and other organizations do an excellent job of elucidating when and how to perform screening, less attention is given to when screening should stop. Little evidence and few recommendations are available on which to base such decisions, particularly for those over age 70. The most current information is shown in Table 1.

When choosing to screen for a particular disease, several factors need to be considered. First, the disease must be sufficiently common and serious to present a problem to individuals and to society. Second, there must be a latent or asymptomatic stage during which treatment will be of more benefit than after symptoms occur. Third, there must be a sufficiently accurate, safe, and cost-effective screening test that is acceptable to patients.

When applying screening tests to older adults, four other factors must also be considered: life expectancy, level of disease co-morbidity, ability to undergo the screening test and any ensuing treatments, and personal preference.

Life Expectancy

Average life expectancy in the US is now about 78 years. Individuals age at different rates, however, leading to considerable variability in survival, even at advanced ages. Vigorous older adults may benefit from many of the standard available screening tests, whereas those with multiple co-morbidities might not live long enough to profit from screening. It is important to note that the average life expectancy of nursing home residents is less than 3 years. Therefore, screening in nursing home residents should be individualized rather than routine.

Because life expectancy is not solely a function of chronologic age, many experts have suggested calculating an estimated life expectancy as a function of health, or "physiologic age."

One easy-to-use method adjusts chronologic to physiologic age by using patients' ratings of their health status. Patients are asked: "How is your health – excellent, good, fair, or poor?" Depending on the response, physiologic age can be determined from Table 2 and the results used to estimate life expectancy (Table 3). Other approaches include gait speed or self-reported functional status. Screening is most appropriate for those with an estimated life expectancy greater than 10 years.

Co-morbidity

Disease co-morbidity influences the benefits of screening. Individuals with no co-morbidities have overall benefits for cancer screening up to age 76; those with mild, moderate, and severe co-morbidities should consider cessation at ages 74, 72, and 66 years, respectively.

Ability to Participate in Screening and Treatments

Screening tests may be a challenge for older adults with functional limitations, and all aspects of patients' health should be considered prior to ordering screening tests. For example, DEXA testing for osteoporosis may be difficult for individuals with mobility issues or who cannot lie flat. Patients with dementia may be uncooperative and unwilling to participate in testing procedures. Similarly, if a screening test detects a disease whose treatment presents an unacceptable burden to a patient, screening may not be warranted. Information about potential treatments should be discussed before screening occurs.

Personal Preferences

Personal preferences are an essential part of decisions about screening, and most patients indicate they would continue screening throughout their life, often in spite of a clinician's recommendation against screening. The American Geriatrics Society recommends that older patients should have access to screening tests. even if they do not plan to pursue treatment of a condition that is found. They can still incorporate the test results into planning for their remaining life course, and they should not be denied access to desired testing solely because the test results will not change management.

TIPS ABOUT SCREENING TESTS FOR OLDER ADULTS

- Avoid screening tests for people whose life expectancy is so short, or have such severe co-morbidities, that they are likely to die before benefiting from treating the condition that would be detected by screening.
- Estimate life expectancy from physiologic age, not chronologic age (Tables 2 and 3).
- Order screening tests for nursing-home patients on an individual basis, as their average life expectancy is <3 yrs.

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Table 1: Recommendations for Screening and Stopping Screening in Older Adults (USPSTF = US Preventive Services Task Force; LE = life expectancy)

CONDITION	RECOMMENDATION	WHEN TO STOP	MODIFYING FACTORS
Aortic aneurysm	Once in male smokers of ≥ 100 cigarettes	After age 75	Recommendation refers only to abdominal aneurysm; may offer to male non-smokers
Breast cancer	Every 2 years	After age 75	If LE >5 yr and can tolerate treatment, continue screening
Cervical cancer	Every 1-3 years; every 5 yrs if had HPV vaccine	After age 65 if previous negative results	Continue screening if cervix present and multiple sex partners
Colorectal cancer	Depends on screening method	After age 85	Individualized in people between 76 - 85 yrs
Dementia	Varying recommendations		Assess whenever there is clinical suspicion
Depression	Varying recommendations		Adults >18 yrs and whenever there is clinical suspicion
Diabetes	Every 3 years per USPSTF	After age 70 per USPSTF	After age 70, test if there is clinical suspicion
Falls	Periodically; no specific interval		Check for vitamin D level if screening positive
Hearing	No screening per USPSTF		Other organizations recommend screening every 3-5 years
Hepatitis B	Periodically in high-risk groups	If risk factors no longer present	No screening if immunized against hepatitis B
Hepatitis C	Once		Only screen if born between 1949-1965
Hypertension	Every 1-2 years		If LE <1 yr, consider stopping
Lipid disorders	Every 1-5 years	After age 65	If LE >5 yr and treatment likely to benefit, continue screening
Lung cancer	Annual if ≥ 30 pack-yrs smoking	Age 80 or ≥15 yrs no smoking	Others suggest stopping at age 75
Obesity	Routine at office visits		Consider not checking if LE <20 yrs
Oral cancer	No specific recommendations		Some organizations recommend screening if high risk
Osteoporosis	Once (age 65 women, 70 men)		Consider in men > age 65 with history of fracture
Ovarian cancer	No screening		
Pancreas cancer	No screening		
Periph artery dz	No specific recommendations		No testing after age 65
Prostate cancer	Individualized age 55-69	After age 70	Some recommend individualized screening for high risk groups
Sexually transmitted infections	No specific recommendations		Consider screening if new or multiple sex partners
Thyroid disease	No specific recommendations		
Vision	No screening per USPSTF		Other organizations recommend screening every 1-2 years
Vitamin D	Insufficient evidence		Consider not checking if LE < 5 years

Table 2: Estimating Physiologic Age from Chronological Age and Self-Reported Health Status

Age In Yrs	Physiologic Age (Yrs)							
	Self Reported Health Excellent		Self Reported Health Good		Self Reported Health Fair		Self Reported Health Poor	
	M	F	M	F	M	F	M	F
65	58	60	64	64	68	66	73	72
70	62	65	69	69	73	71	78	77
75	67	70	74	74	78	76	83	82
80	72	75	79	79	83	81	85+	85+

M = Male, F = Female

Adapted from: Welch HG, Albertsen PC, Nease RF, Bubolz TA, Wasson JH. Estimating treatment benefits for the elderly: The effect of competing risks. *Ann Intern Med.* 1996:124:577-584.

Table 3: Life Expectancy for Men and Women in the US Based Solely on Chronological Age

Age In Yrs	Life Expectancy in Years (Percentile)					
	Male			Female		
	25th	50th	75th	25th	50th	75th
70	6.7	12.4	18.0	9.5	15.7	21.3
75	4.9	9.3	14.2	6.8	11.9	17.0
80	3.3	6.7	10.8	4.6	8.6	13.0
85	2.2	4.7	7.9	2.9	5.9	9.6
90	1.5	3.2	5.8	1.8	3.9	6.8
95	1.0	2.3	4.3	1.1	2.7	4.8

Data in this table are population statistics that have not been adjusted for health status (physiologic age). Use the information in Table 2 to determine an individual's physiologic age, and then use the age in this table to estimate life expectancy. Source: JAMA; 285:2751.

References and Resources
US Preventive Services Task Force Recommendations: http://www.uspreventiveservicestaskforce.org/BrowseRec/Index/browse-recommendations.