Health Maintenance in the Older Adult

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Disclosures

No financial disclosures

Definitions

- What is “Health Maintenance”?
- Combination of screening and preventive measures to prevent disease
- Examples would include colon cancer screening via colonoscopy or stool tests, or monitoring cholesterol and blood sugar levels for coronary artery disease risk
- Preventive measures run the gamut from medications to exercise to nutrition and more
- Distinct from “secondary screening”

Outline of Talk

- Functional Status: What is it, how do we measure it, why it matters
- General conditions that lead to decreased functional status
- Mild Cognitive Impairment and Dementia
- Age-Appropriate Cancer Screening and Prevention
- Screening for coronary artery and cerebrovascular disease
- Screening for bone mineral disease, osteopenia, osteoporosis
- Social/Environmental Contributors to health: Loneliness, home safety, mobility
- Immunizations
- Advance Care Planning
- Conclusion
- Questions

"Your contents have shifted."

Functional Status

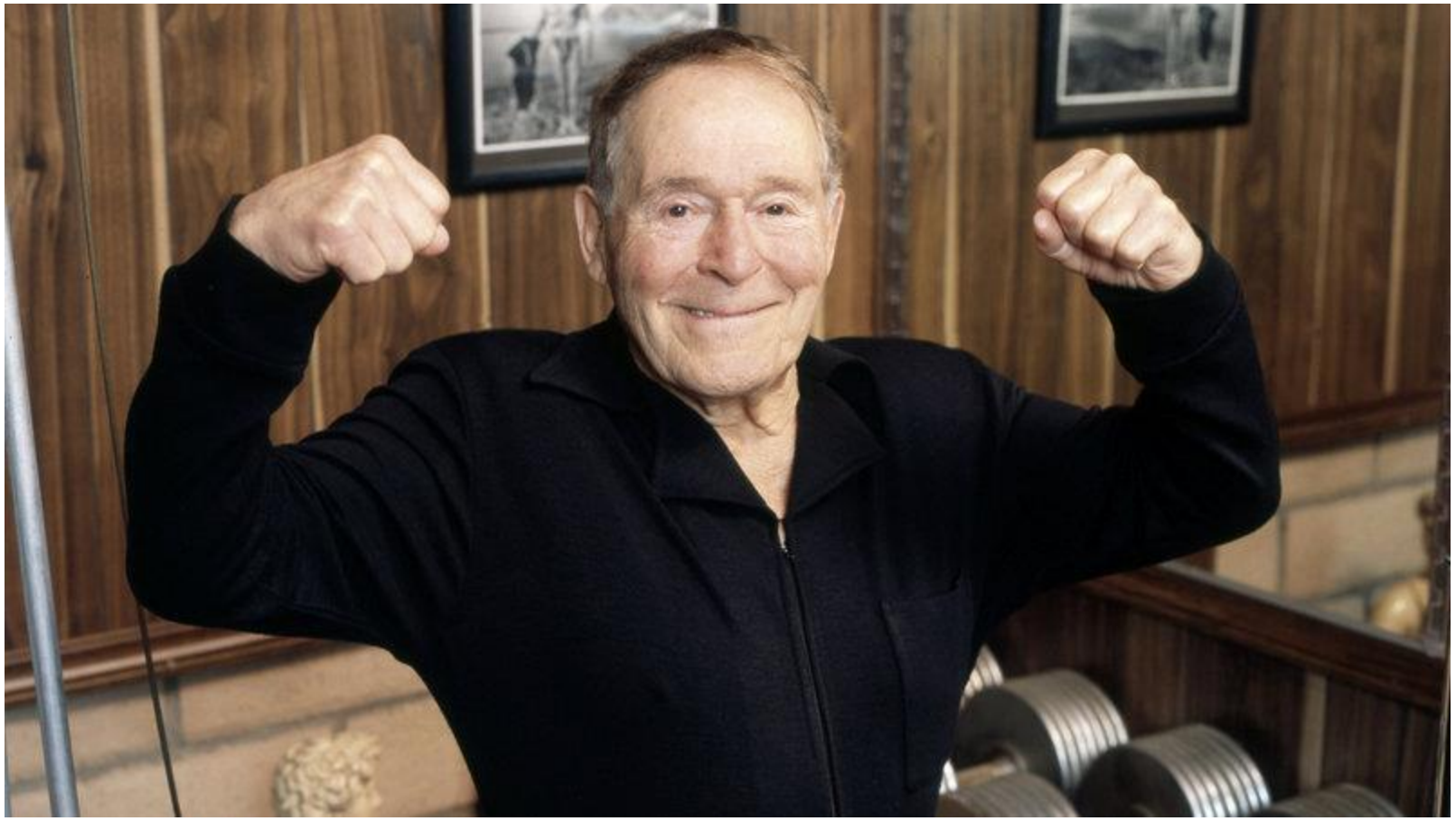
- Basic Activities of Daily Living, aka ADLs
  - Personal Hygiene (bathing, oral/dental care etc.)
  - Dressing/Undressing
  - Eating/Drinking
  - Transferring from bed to standing, or walker, or wheelchair, etc.
  - “Toileting,” continence
  - Mobility/Getting Around

Functional Status

- Instrumental Activities of Daily Living-Important for independent living but involves more than the ADL, many examples
  - Grocery Shopping
  - Laundry/House Cleaning
  - Money Management
  - “If there’s an app for it, it’s probably an IADL” –Dr. Anna Chodos

Frailty

- Specific medical definition is a physiologic syndrome characterized by decreased reserve and diminished resistance to various stressors. (Harrison's Internal Medicine, Vol. 1, pp. 77-78)
- Assessing and tracking markers of frailty is an important component of preventive health in older adults
- There are a number of ways to estimate frailty, within the context of a comprehensive geriatric assessment
  - Grip strength using a dynamometer correlates well with other markers of frailty
  - Fatigue, unintentional weight loss, decreased activity, slower gait
  - The timed get up and go (TUG) test can also be used as an objective measurement of frailty



Sarcopenia

- Age related loss of muscle mass
- Complex condition, partly related to decrease production of androgens (testosterone) with aging in men and women
- With aging, the body normally requires less energy (calories), though this can lead to malnutrition and muscle wasting (sarcopenia) if not addressed early
- Protein intake is important to maintaining muscle mass and strength, even if you are not an avid exerciser (Sieber, 2019)
- Resistance training and weight-based exercise are also important to maintaining strength, and mobility/balance (Moncada and Mere, 2017)

Nutrition and Prevention

- Recent evidence suggests a significant role for nutrition in the prevention of frailty, though the evidence for nutrition as a counter-measure against dementia is less compelling (Seiber, 2019; Morris, 2019)
- Often we can align diets that have evidence as prevention for other conditions (hypertension, coronary artery disease) like the DASH diet or the Mediterranean diet with diets to mitigate the effects of muscle loss and decreased strength
- Protein, protein, protein (about 1-1.5 gm per kg of bodyweight)
  - For a 180 pound man this would equate to around 70-90gm protein daily
  - One egg has about 10g of protein
  - One skinless/boneless chicken breast has between 30-40gm protein

Nutrition and Longevity

- Growing area of research, but early lessons have been interesting
- Intermittent fasting or daily lower calorie intake (1200-1500 calories depending on body weight/muscle mass/activity levels) have been shown to slow molecular changes that contribute to both aging and disease (cancer, atherosclerosis, etc.) (Seals, Justice, et al. 2015)
- Need to balance this with importance of maintaining protein intake
- Protein has about 4 calories of energy per gram, so eating 70g of protein in a day only supplies about 280 calories of energy
- The remainder is made up of fat and carbohydrate
  - Fat is more energy dense, with 9 calories/gram, so eating 30g of fat in a day provides about the same caloric value as 70g protein

Medications and Prevention

- Need to balance risks of “Polypharmacy” with the proven benefit of certain medications
- SPRINT trial taught us that there is some mortality benefit to tighter blood pressure control
  - But must balance risks of medication with benefits, side effects of many blood pressure medicines can contribute to fall risk
- Some observational data that cholesterol-lowering medications called statins (like Lipitor, crestor) are associated (though not clearly causal) with cognitive decline and dementia
- However, some newer data from cardiology research shows a potential increase in the risk of heart attack after stopping statins in older patients

Medications-The BEERS Criteria

- Consesus approach to identifying medications that put older adults at risk of harm
- First edition in 1991, updated regularly since, most recent update 2019
- Many many medications, but some of the most important in terms of health and frailty
  - Avoid mixing narcotic/opioid pain medications and benzodiazepines when possible (so norco+Ativan, Percocet+valium, tramadol+Xanax and so forth)
  - Anti-cholinergic (medications that block the effects of the neurotransmitter acetylcholine) are to be avoided as much as possible as they contribute to delirium, urinary retention, constipation, arrhythmias among other things
  - Be mindful that many antibiotics can cross the blood-brain barrier and cause confusion/delirium

Screening and Longevity

- Screening means testing for disease before it occurs, or at least before it progresses to a point past which treatment is more difficult and/or cure is not possible
  - Example in colorectal screening, when doing a colonoscopy the gastroenterologist is looking for both pre-cancerous lesions and also may find isolated cancer, which can be cured, whereas no screening could result in the diagnosis of cancer at a much later stage, when treatment may require systemic chemotherapy, radiation, and cure may not be possible
- This type of screening is considered “primary prevention”
- “Secondary prevention” in the context of screening means surveillance, like a patient who had a lung cancer removed along with part of the lung, and requires regular CT scans of the chest to check for possible recurrence

Mr Weissenburg's Colon knew Karate.

A few comments on screening . . .

- Before we jump into the specific screening tests for certain diseases, we need to cover some of the statistical hang ups we run into with screening
  - Lead-time bias
  - Sensitivity and Specificy
  - Positive and Negative Predictive Values
  - Length-time bias

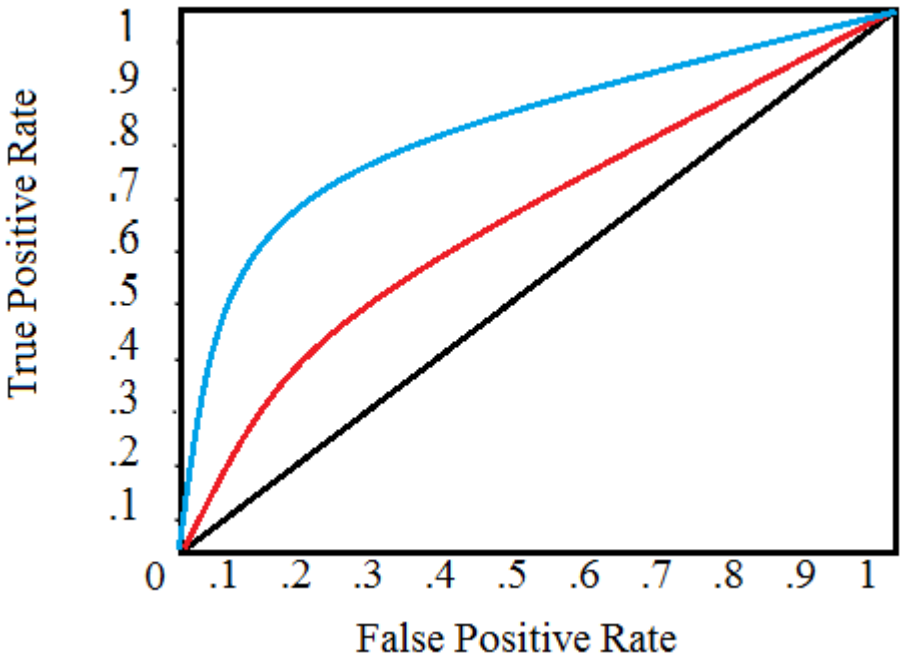
Test Characteristics: Sensitivity and Specificity

- May be old news for some of you listening, but a review is worth it
- Sensitivity is a probability, namely the probability that, if you already have a condition or disease, that a test will detect it
  - For example, if you have pneumonia, and I get a chest xray, there is a probability that the test will detect pneumonia, this is its sensitivity, the opposite probability that it will miss the pneumonia, is the false-negative probability
- Specificity is the probability that if you do NOT have a condition or disease, the test will show a negative result
  - In the age of COVID, this would mean that if you did NOT have covid but had a cough and fever etc., a good specific test would show negative covid, the opposite probability would beh the false-positive probability
- Can anyone see the inherent problem in trying to use these numbers in medicine?

Test Characteristics: Positive and Negative Predictive Values

- When we screen or try to diagnose an illness, of course we don't know if you have or don't have the illness
- Thus, the probability of a test outcome based on knowing the disease state is not super useful
- Positive and Negative PV get at this number: Positive predictive value is the probability of having a disease with a positive test result, negative is a negative result and not having disease
- It turns out the relationship between these numbers and sensitivity and specifity is dependent on prevalence, or the overall probability of a disease in a given population
  - For example, if we do prostate cancer blood tests in a group of women, any positive result would by definition be a false positive, and the PPV would be essentially zero
- This is Bayes' theorem in action, where one probability is dependent on another via an intermediary probability, in this case prevalence

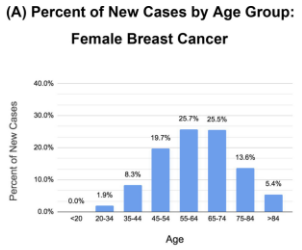
Receiver-Operator Characteristic



Colorectal Cancer Screening

- Since both men and women have colons (barring surgical removal), colon cancer is the most commonly diagnosed cancer in the United States
- Screening for colorectal cancer has been shown in study after study to be safe and effective in the detection and treatment of pre-cancerous (polyps) lesions
- However there are a number of options for screening
  - Colonoscopy every 10 years to start, with reduction of screening interval based on results, is still the ideal way to go about screening
  - However, we try not to let the “perfect” be the enemy of the “good”
  - For patients who are at average risk (no familial cancer syndromes or history of advanced polyps), fecal immunohistochemical testing every year yields about the same cancer detection rate as colonoscopy
  - We’ve moved away from simple stool blood tests, sigmoidoscopy alone, as these are less effective

Breast Cancer Screening



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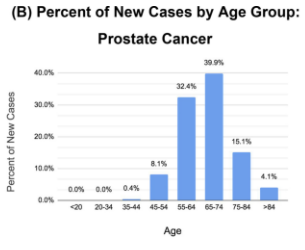

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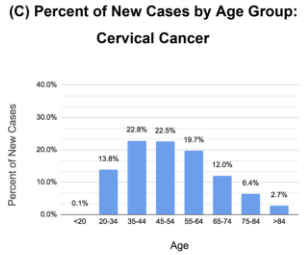

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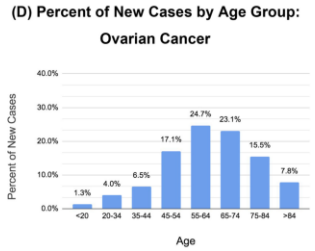

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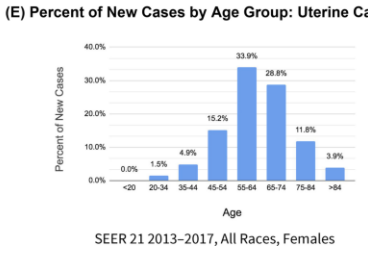
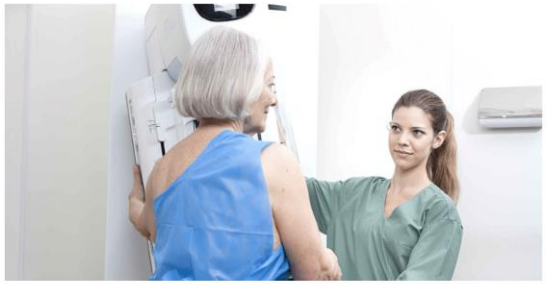


SEER 21 2013–2017, All Races, Females

- The likelihood of developing a new cancer after age 75 is dependent on the type of cancer, with breast cancer, about 20% of new cases in a given time frame will be in women older than 75
- Thus, it may be reasonable to continue mammography after age 75 depending on health status and life expectancy
- Gold standard for breast cancer screening remains mammography, every 1-2 years



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LOW-VALUE CARE

Nearly half of older adults get overscreened for cancer

BY **Judith Garber** | August 3, 2020

Preventive cancer screenings have been **greatly reduced** during the Covid-19

Prostate Cancer Screening

- Current recommendations are yearly PSA (no more digital exams) until age 75
- Decisions to screen after age 75 in men are highly dependent on individual patient situation
- Prostate cancer is exceptionally common in men over the age of 75 but does not often lead to death or serious disease, and in men over 75 there are scant data to support any mortality benefit from screening past this point (BMJ, 2018)

Bone Density Screening

- We screen men and women for osteoporosis (thinning bones) because fractures, particularly hip fractures and falls, are associated with increased risk for mortality
- Women start age 65, men age 70, but it is risk factor dependent
  - Smoking
  - Heavy Drinking
  - Prolonged use of medicines like prednisone
  - History of prior long bone fractures (upper arm, femur)
- From all these we get something called a FRAX score, which gives a probability of major fracture
  - Typically when this probability goes above 10% we like to treat with medicines like Fosamax (bisphospohnates) that help stop excessive bone breakdown

RESEARCH ARTICLE

International Journal of Geriatric Psychiatry

Loneliness, depression and cognitive function in older U.S. adults

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Vaccinations

- Current recommendations for vaccines for older adults include the following:
  - Tetanus-diphtheria acellular pertussis (Tdap) every 10 years
  - Influenza (flu) shot yearly
  - Both the 23 valent (pneumonvax) and 13 valent (prevnar) one time each for pneumonia
  - Herpes zoster (Shingrix) if you've already gotten the Zostavax vaccine, if you haven't gotten zostavax, fine to just get shingrix

Other issues

- Home Safety Evaluation-can be arranged by your physician via home health physical therapy, data are mixed for efficacy of these but if you live alone or have a history of falls it's a good idea to have one done
- Yearly Medicare wellness visits and comprehensive geriatric assessments
- Advance Directive
  - Two parts, first is designation of "healthcare proxy"
  - Someone you trust to make good decisions in your interest if you aren't able to when sick
  - Other part is a detailed description of your wishes for healthcare if you were very ill or had a terminal illness
    - Helps avoid unnecessary suffering for you and loved ones at end of life
    - https://oag.ca.gov/sites/all/files/agweb/pdfs/consumers/ProbateCodeAdvancedHealthCareDirectiveForm-fillable.pdf
    - Can be accessed online, filled out by you and your DPOA, and then signed/witnessed by notary public

Thank You!