

How a Geriatrician thinks about older adults and the concept of successful aging

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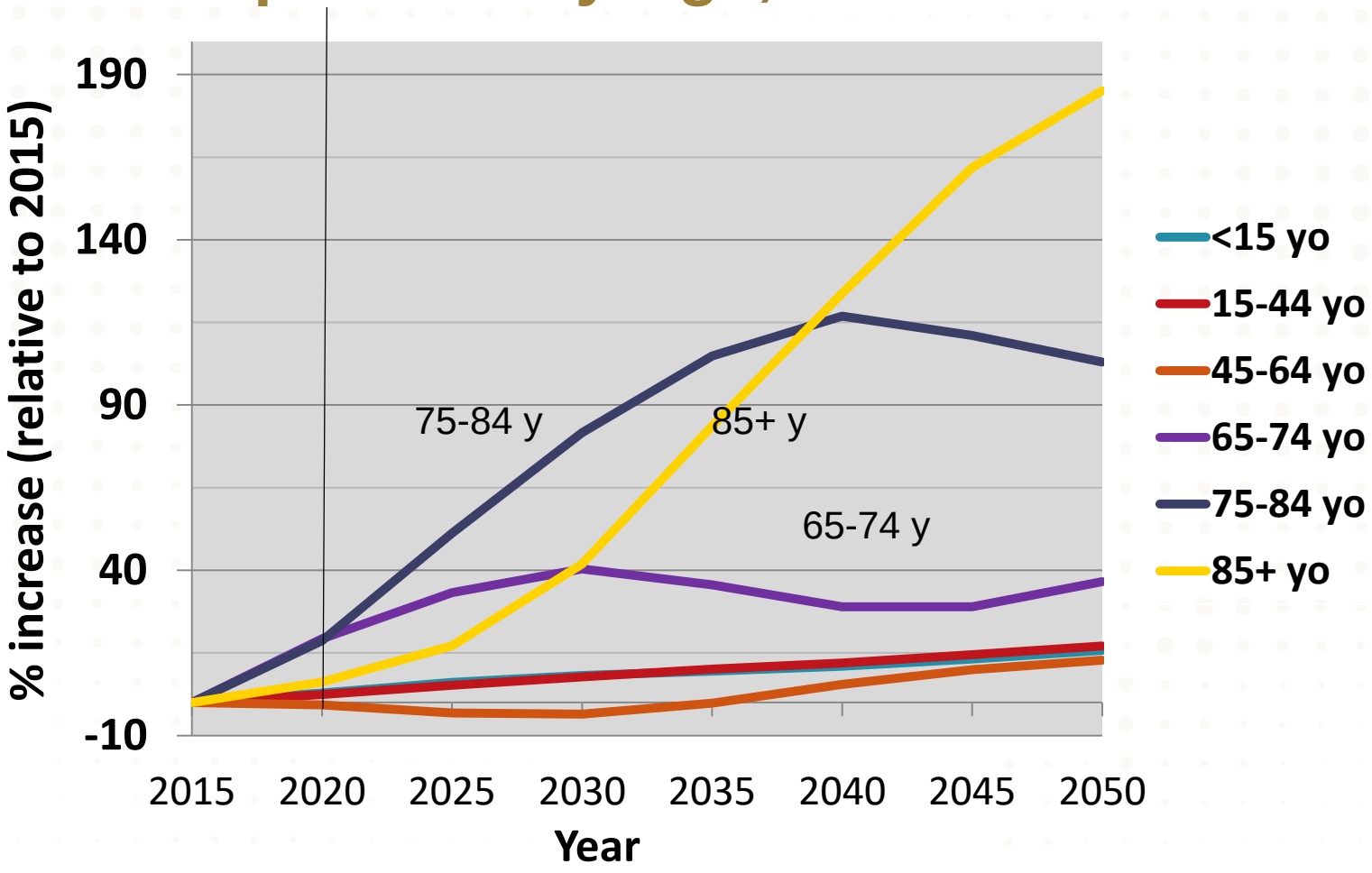
Psalm 90: 4

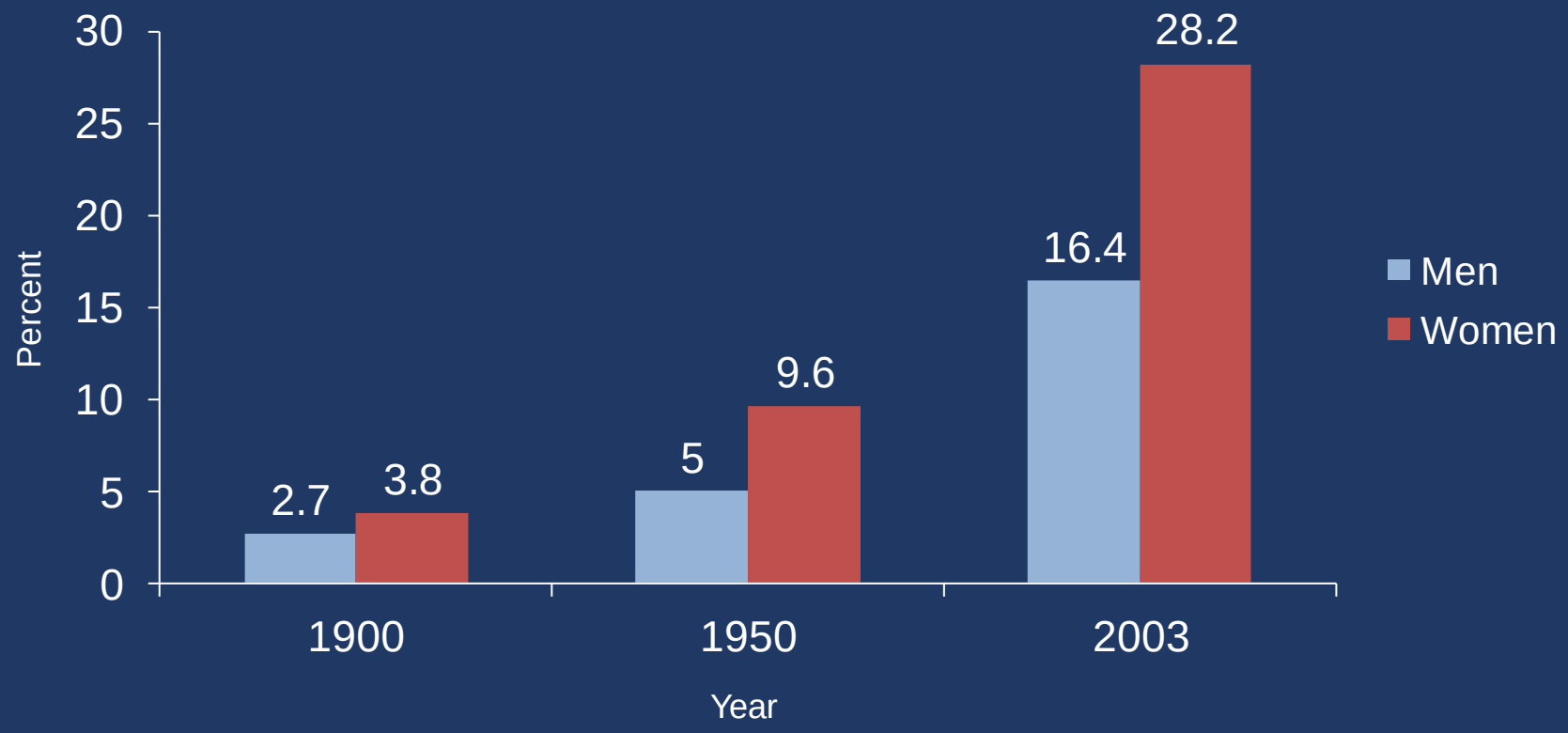
LORD, make me to know mine end, and the measure of my days, what it is: that I may know how frail I am.

Demographic Importance: *Projected* Percent Growth in US Population by Age, 2015 to 2050

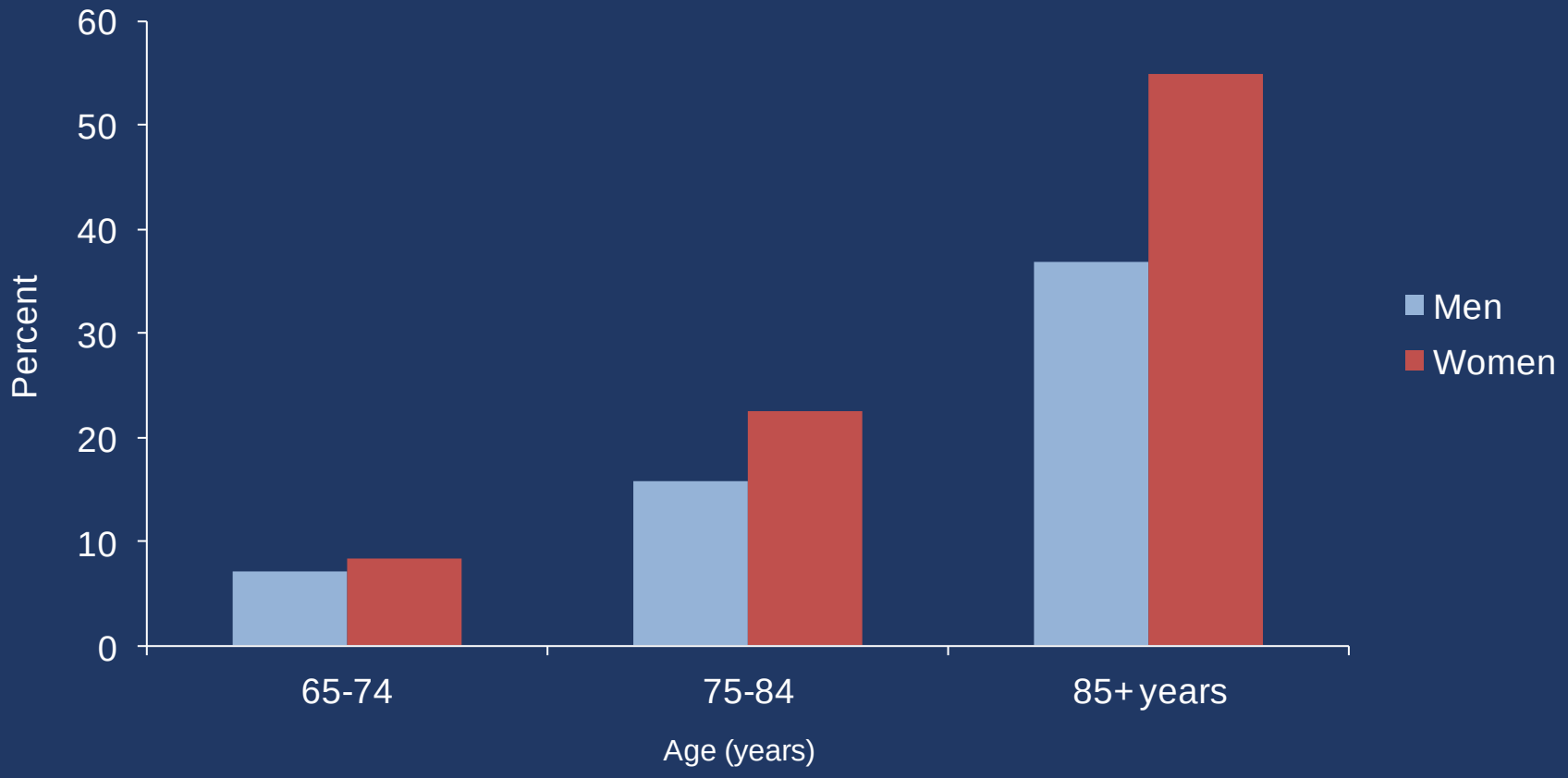


Source: US Census Bureau, Table 12 Projections of Population by Age 2015 to 2060

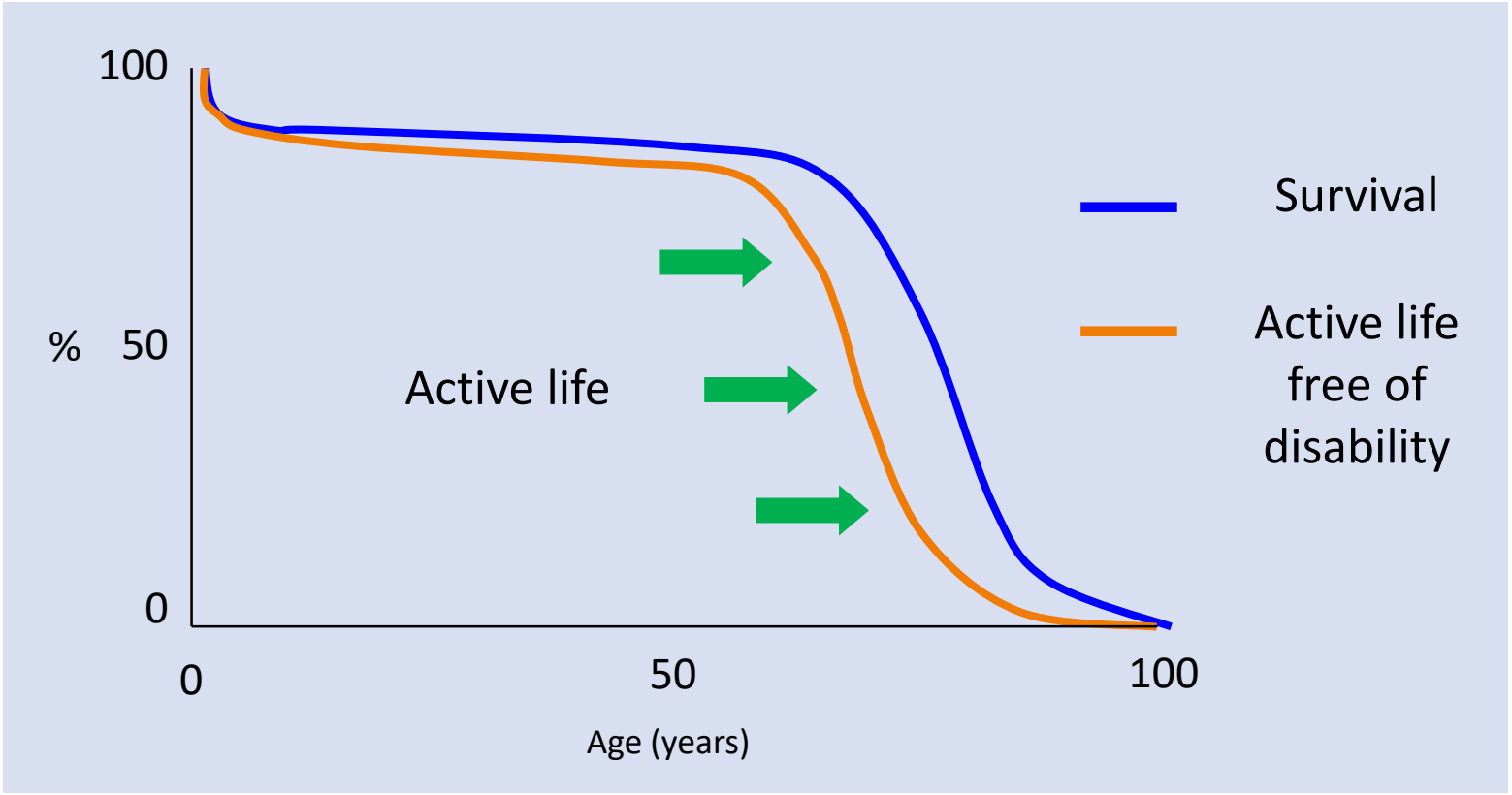
Proportion of 50-year-old Men and Women Who Can Expect to Live to Age 90 Years



Cognitive Impairment and Dementia: Proportion of Population that Requires Help or Supervision From Another Person

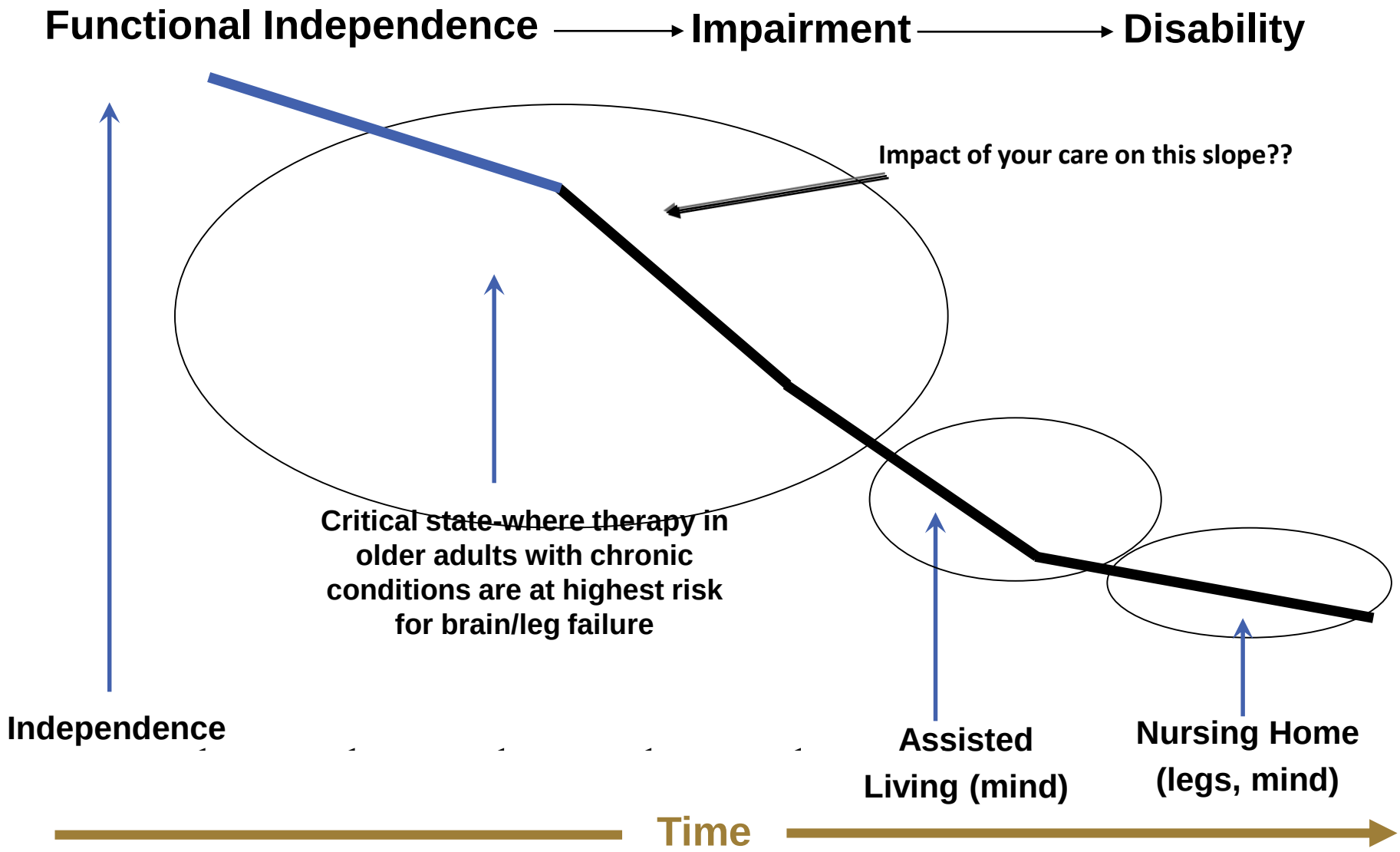


Primary Focus of the Doctor Visit*: To Expand Active Life Expectancy



*for routine care, a nurse practioner or physician is often BETTER!

Physical & Cognitive Function—NOT AGE or DISEASE—are the measure of one's frailty



Helping an older adult Prepare for a PRIMARY CARE Doctor's Visit

Who should come:

- Patient
- Other family members or friends or professional caregivers

What to bring:

- Medicare and other insurance cards
- Medications - list OK, bottles better
- Legal documents – DPOA, Healthcare POA, living will, DNR, POLST
- A SHORT list of questions 2-3 at most
- If all cannot be covered in this visit—ask for another visit in the next several weeks

Helping an older adult Prepare for a PRIMARY CARE Doctor's Visit

What the doctor SHOULD want to know

- Symptoms, changes, challenges, and concerns that impact:
  - Physical function
    - Standing from chair or car or bed or toilet
    - Balance
    - Walking (steps, 2-3 blocks, to mailbox, in home)
  - Cognitive function
    - Attention and concentration
    - Short- and long-term memory (dates, appointments, etc.)
    - Executive function - planning, problem solving, and multitasking
    - Spatial function - navigating steps/curbs, driving

Helping an older adult Prepare for a PRIMARY CARE Doctor's Visit

- Come prepared with 1 key and 1-2 more secondary questions
- Focus on how you can best, in between visits identify changes in physical or cognitive function that are important
- NPs and PAs are often better at managing ongoing chronic conditions
- MDs are often (but not always) most effective at diagnosing complicated conditions or providing input into how functional changes may be due to treatments improving one area but harming another

How do we measure physical and cognitive function?

Here are some important tests that:

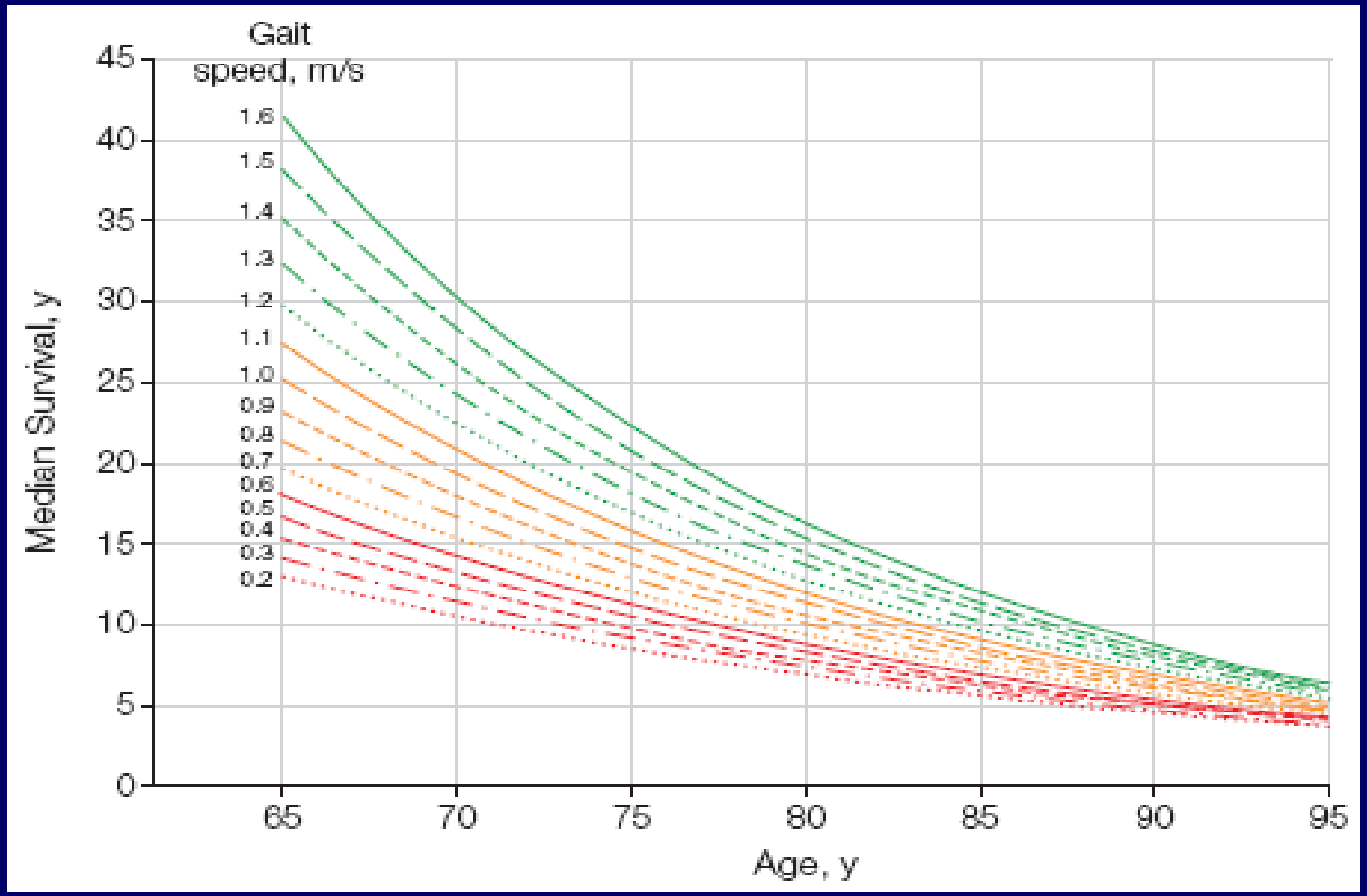
1. **assess current physical and cognitive function**

2. **predict future development of physical and cognitive impairment**

Physical function as a "Vital Sign" to guide prevention and treatment in aging adults

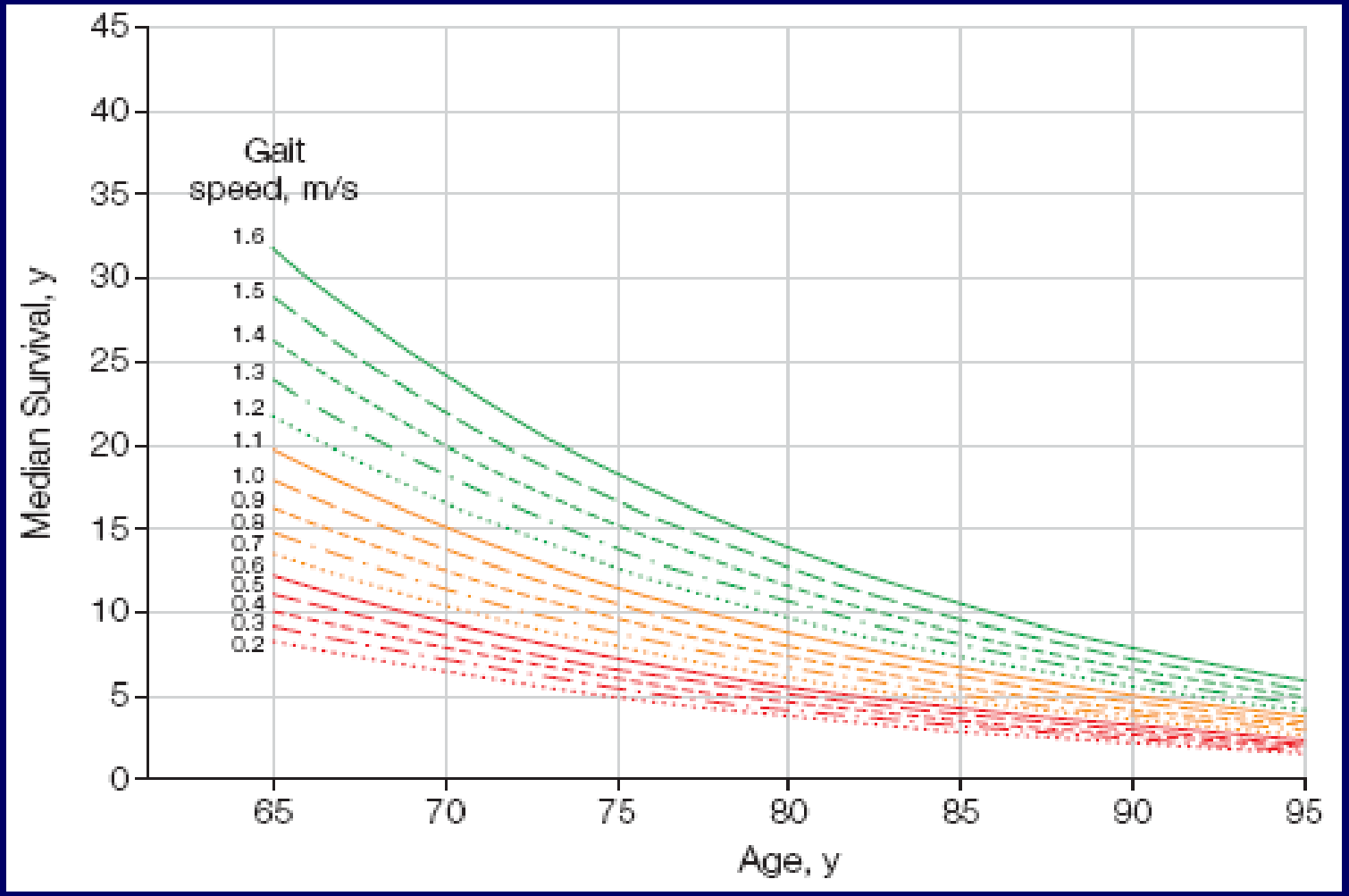
- The 4 meter walk test
- The Chair Stand Test
- Tandem and semi tandem balance test
- Grip and arm strength

Predicted life expectancy by age and walking speed in women



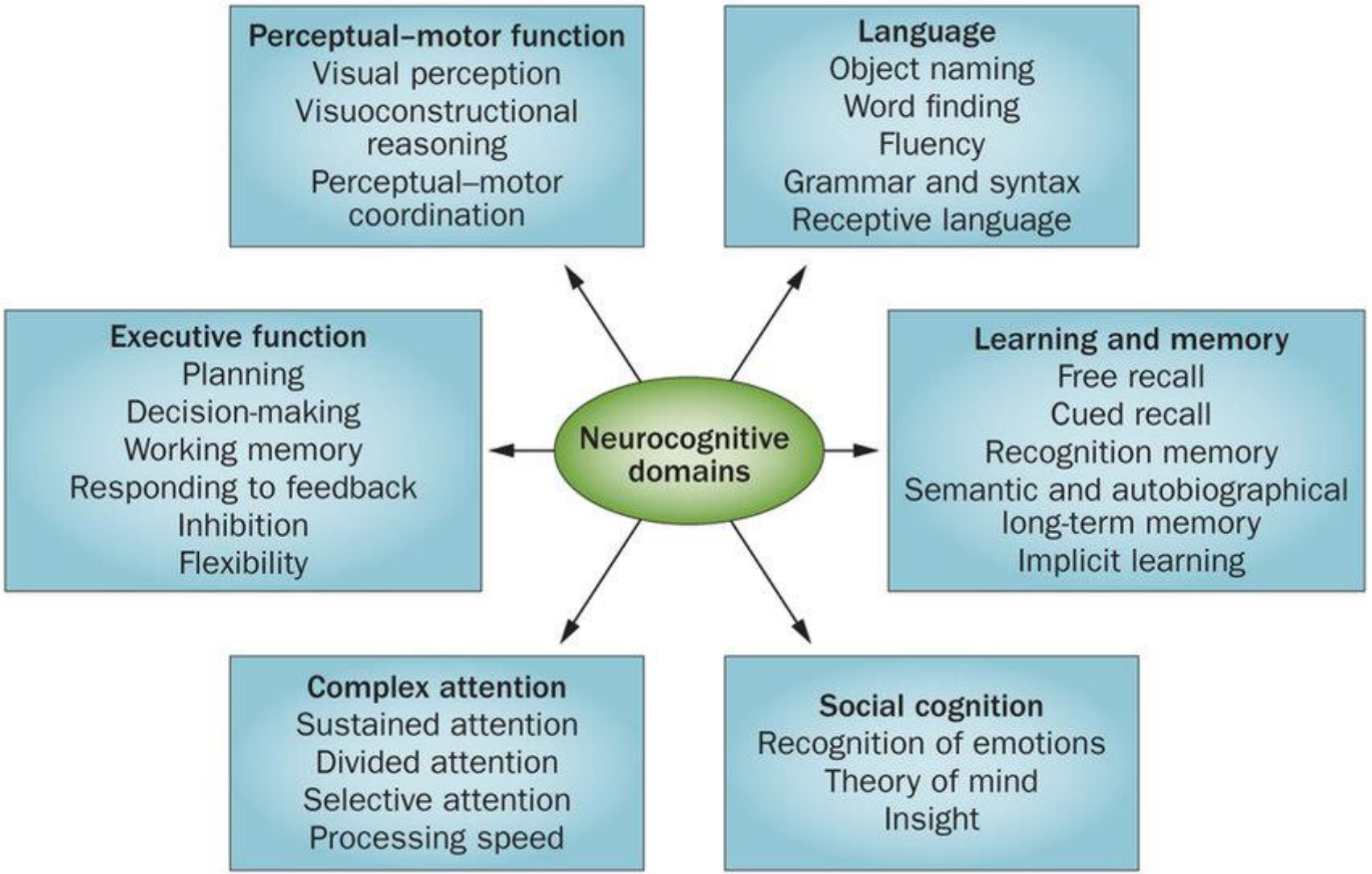
Studenski et al. *JAMA; 2011;305:50*

Predicted life expectancy by age and walking speed in men



Studenski et al. *JAMA; 2011;305:50*

Domains of cognition



Geriatric assessment predicts survival for older adults receiving induction chemotherapy for acute myelogenous leukemia

Heidi D. Klepin,[1] Ann M. Geiger,[2] Janet A. Tooze,[2] Stephen B. Kritchevsky,[3] Jeff D. Williamson,[3] Timothy S. Pardee,[1] Leslie R. Ellis,[1] and Bayard L. Powell[1] BLOOD, 23 MAY 2013 • VOLUME 121, NUMBER 21

Table 2. Baseline GA measure scores among older adults initiating induction chemotherapy for AML (N = 74)

GA scores	Median (25th, 75th)	% Impaired
Cognition		
3MS (range 0-100, impairment < 77)	85.0 (75.0, 91.0)	28.8
Psychological function		
CES-D (range 0-60, impairment > 16)	11.0 (4.0, 21.0)	39.7
DT (range 0-10, impairment ≥ 4)	5.0 (2.0, 8.0)	58.9
PF		
PAT-D* (range 1-5, impairment > 1) at the time of treatment	1.4 (1.0, 1.8)	72.4
ADL subscale	1.0 (1.0, 1.4)	50.0
IADL subscale	1.0 (1.0, 1.7)	40.5
Mobility subscale	2.0 (1.0, 3.0)	68.9
PAT-D* 6-mo recall	1.1 (1.0, 1.3)	
ADL subscale	1.0 (1.0, 1.0)	23.3
IADL subscale	1.0 (1.0, 1.0)	20.6
Mobility subscale	1.0 (1.0, 1.7)	41.1
SPPB (range 0-12, impairment < 9)	8.5 (3.0, 10.0)	50.0
Grip strength (kg)†		
Male	38.0 (32.0, 44.0)	
Female	24.0 (22.0, 28.0)	
Comorbidity		
HCT-CI (impairment > 1)	1.0 (0.0, 3.0)	41.9

For 3MS, SPPB, and grip strength, a higher score reflects better function. For CES-D, DT, PAT-D, and HCT-CI, a higher score reflects worse function.

ADL, Activities of Daily Living; DT, Distress Thermometer; HCT-CI, Hematopoietic Stem Cell Transplantation Comorbidity Index; IADL, Instrumental Activities of Daily Living; PAT-D, Pepper Assessment Tool for Disability.

*Results based on subjects with calculable survey scores (reported in Results section).

†Scores are based on 67 subjects who performed grip strength.

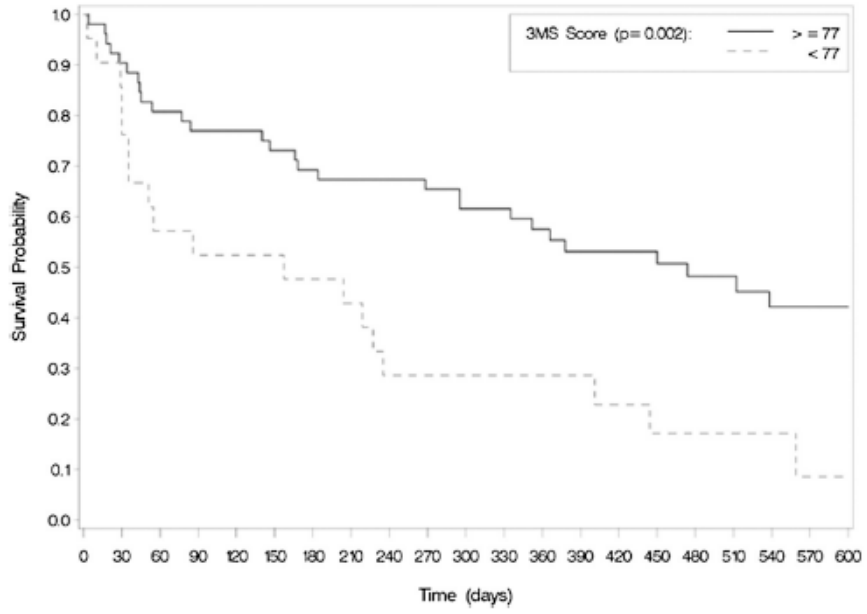


Figure 2. Baseline cognitive function is associated with worse OS among older adults treated for AML (N = 73). Median survival differed using log-rank testing.

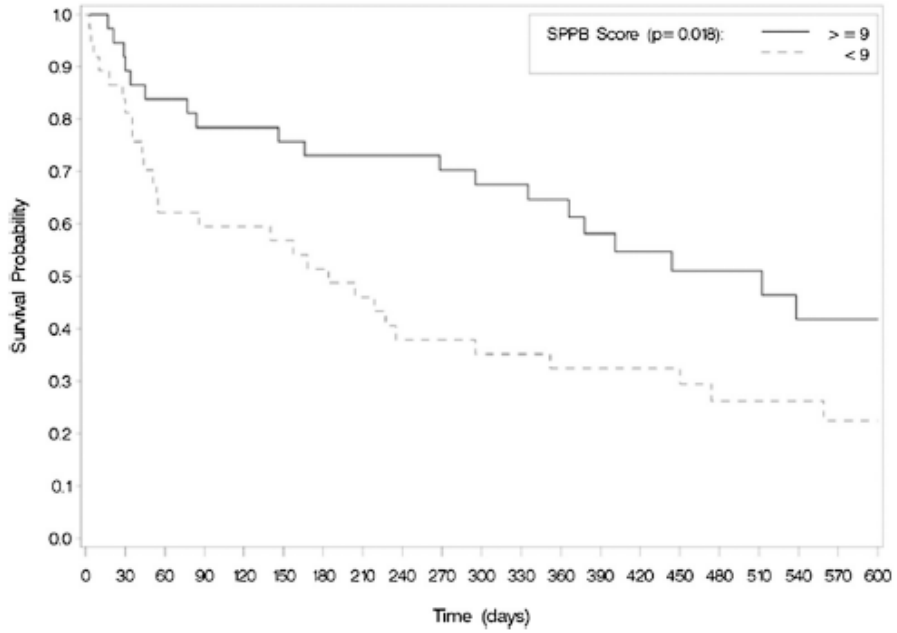


Figure 3. Impaired physical performance is associated with worse OS among older adults treated for AML (N = 74). Median survival differed using log-rank testing.

Table 3. Association between clinical characteristics, baseline GA measures, and OS among older adults with AML (N = 73)

	Hazard ratio for mortality (95% CI)	
Baseline characteristics	**Unadjusted**	**Adjusted***
Clinical and demographic characteristics		
Age (per 10-y change)	1.1 (0.7-1.7)	1.3 (0.8-2.0)
Education (reference = high school)		
High school	0.9 (0.4-2.0)	0.9 (0.3-2.6)
College	0.8 (0.4-1.5)	0.8 (0.3-1.8)
ECOG score (continuous)	1.5 (0.9-2.4)	1.2 (0.7-1.9)
Hemoglobin (continuous)	0.8 (0.7-1.0)	0.7 (0.6-0.9)
LDH (≥600)	0.5 (0.2-1.4)	0.6 (0.2-1.5)
White blood cell count (≥25 000)	0.8 (0.4-1.6)	1.3 (0.6-3.0)
Cytogenetic risk group (favorable/intermediate)	0.5 (0.3-0.8)	0.3 (0.2-0.7)
Prior MDS (not present)	0.5 (0.3-0.8)	0.4 (0.2-0.7)
GA measures		
Cognitive impairment (3MS < 77)	2.4 (1.3-4.4)	2.5 (1.2-5.5)
Depressive symptoms (CES-D score ≥16)	1.4 (0.8-2.5)	1.0 (0.5-2.0)
Distress (score < 4)	1.2 (0.6-2.1)	1.0 (0.5-1.8)
IADL impairment (any at the time of treatment)	1.3 (0.7-2.2)	0.8 (0.4-1.6)
ADL impairment (any at the time of treatment)	1.3 (0.7-2.1)	1.1 (0.5-2.1)
Mobility impairment (any at the time of treatment)	1.4 (0.7-2.6)	1.0 (0.5-2.1)
Impaired physical performance (SPPB < 9)	1.9 (1.1-3.4)	2.2 (1.1-4.6)
Comorbidity burden (HCT-CI > 1)	1.5 (0.9-2.7)	1.2 (0.7-2.2)

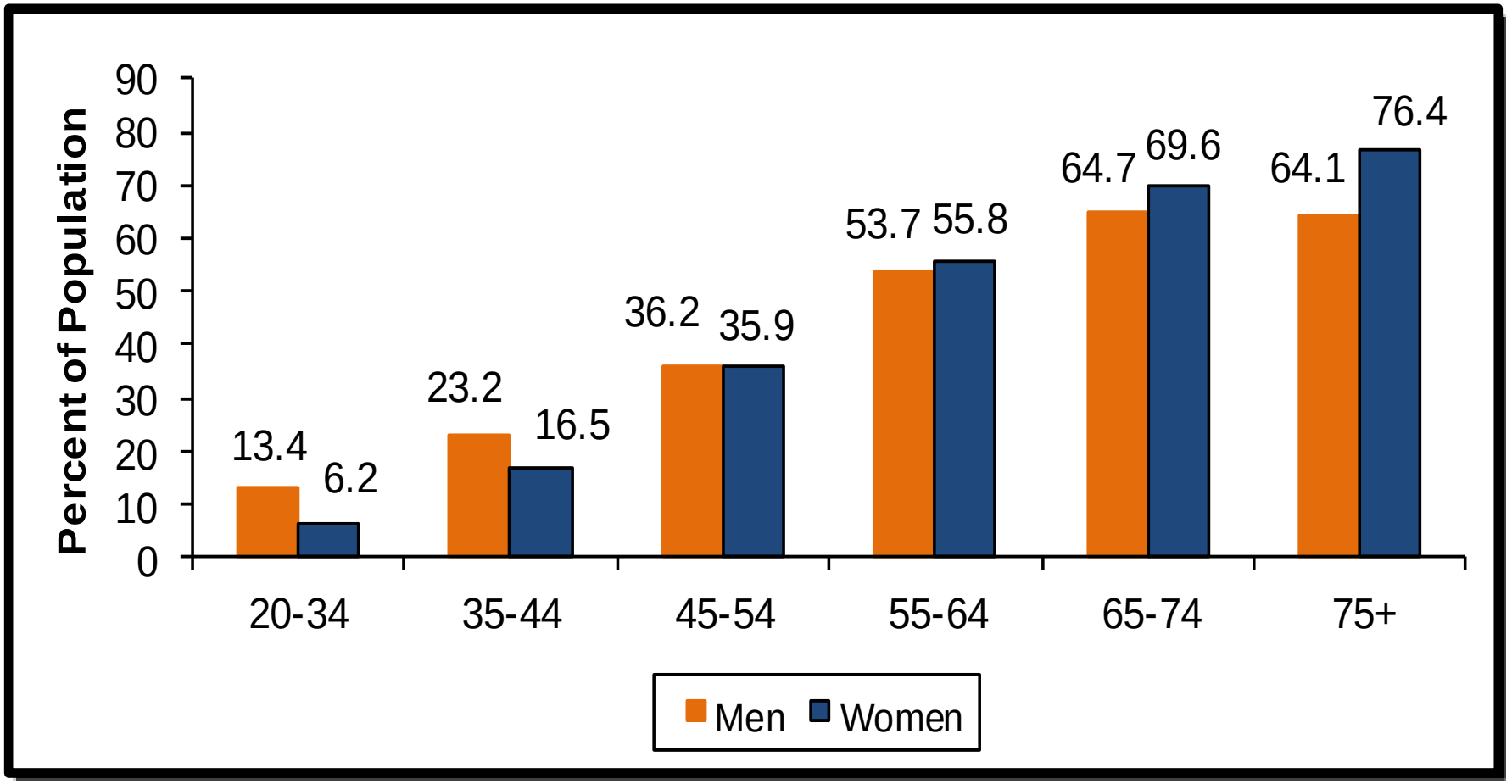
One subject with missing cytogenetic risk group data was excluded.

ADL, activities of daily living; IADL, instrumental activities of daily living; LDH, lactate dehydrogenase.

*Adjusted model includes age, gender, ECOG performance status, cytogenetic risk group, prior MDS, and hemoglobin.

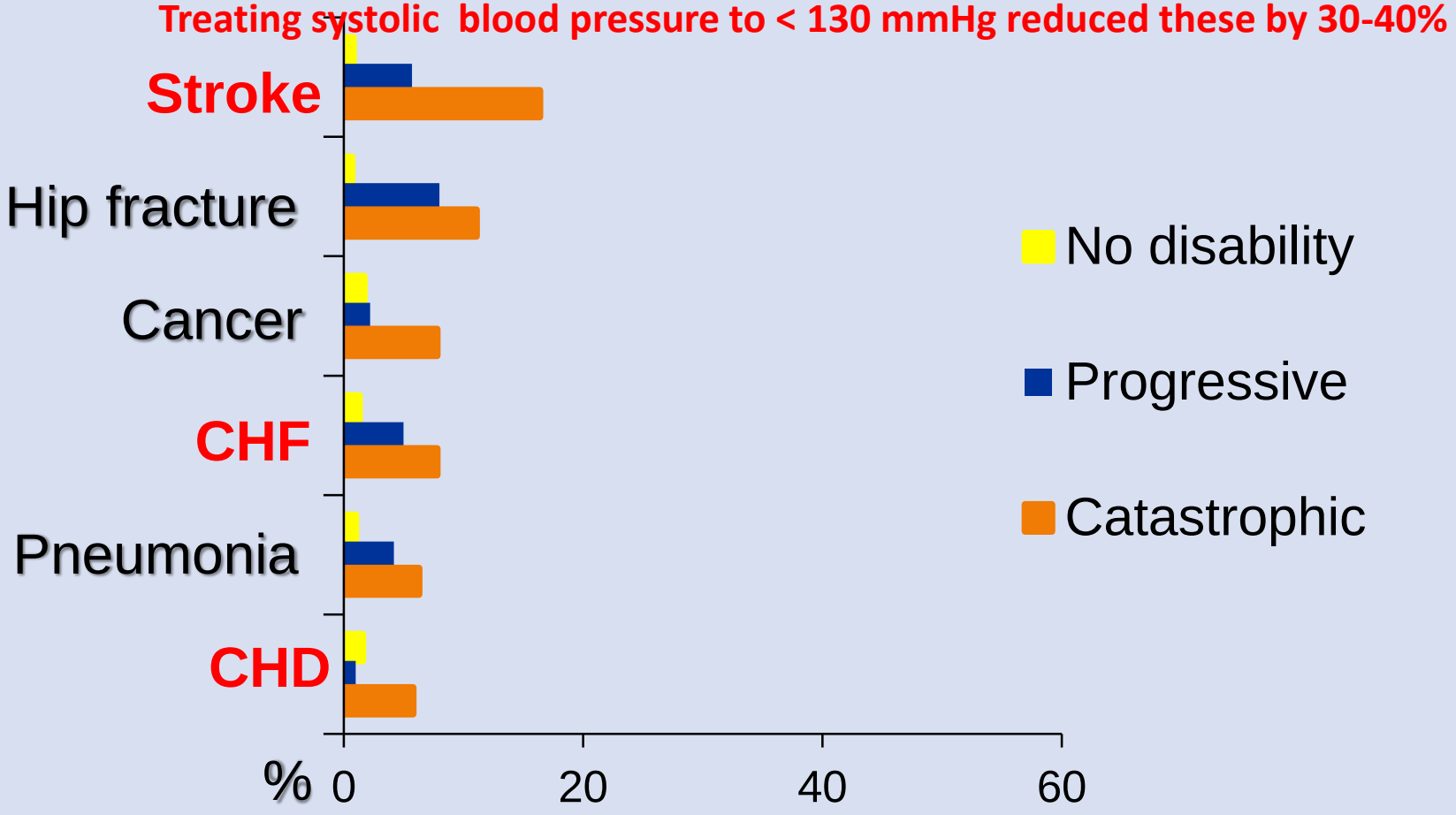
Klepin et al 2013:121:4287-4294

Prevalence of High Blood Pressure in Adults by Age and Sex



(NHANES: 2005-2006) Source: NCHS and NHLBI.

EPESE: Hospital Diagnoses in the Year When Older Persons become Disabled



Ferrucci, et al. *JAMA 1997;*277:728

From: **Effect of Intensive vs Standard Blood Pressure Control on Probable Dementia: A Randomized Clinical Trial**

JAMA. Published online January 28, 2019. doi:10.1001/jama.2018.21442

Intensive blood pressure control: First proven treatment to lower risk for dementia

Table 2. Incidence of Probable Dementia and Mild Cognitive Impairment by Treatment Group

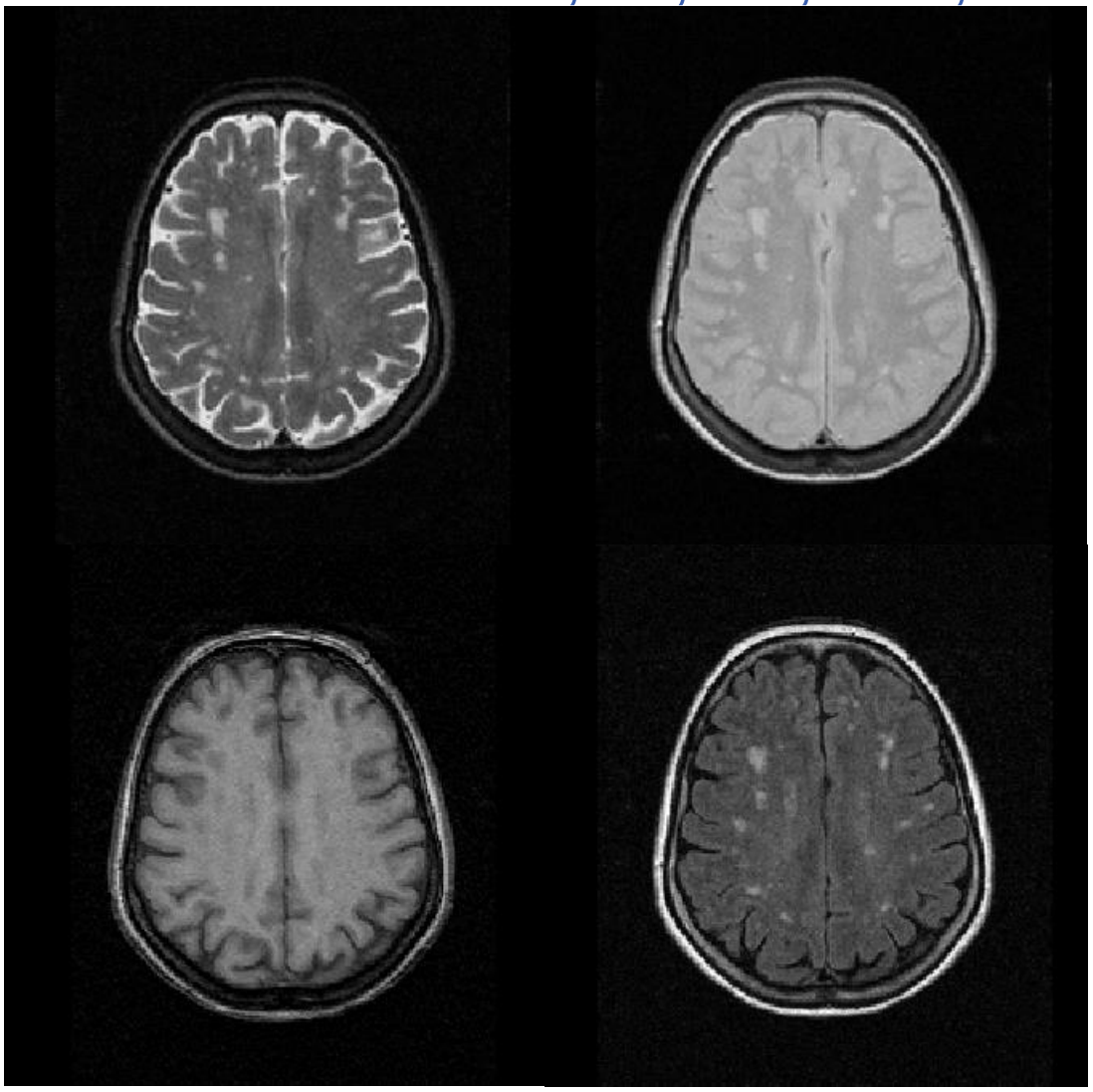
Outcomes	Treatment Group: Intensive — No. With Outcome/Person-Years	Intensive — Cases per 1000 Person-Years	Standard — No. With Outcome/Person-Years	Standard — Cases per 1000 Person-Years	Hazard Ratio (95% CI)[a]	*P* Value
Probable dementia	149/20 569	7.2	176/20 378	8.6	0.83 (0.67-1.04)	.10
Mild cognitive impairment[b]	287/19 690	14.6	353/19 281	18.3	0.81 (0.69-0.95)	.007
Composite of mild cognitive impairment or probable dementia	402/19 873	20.2	469/19 488	24.1	0.85 (0.74-0.97)	.01

[a] Intensive treatment group vs standard treatment group based on Cox proportional hazards regression.

[b] Participants adjudicated as having probable dementia at the first follow-up visit (year 2) do not contribute to the analyses of mild cognitive impairment.

WM Lesion Analysis

- Modalities: T1, T2, PD, Flair, DTI



T2/PD: (mm^3)
0.9375x0.9375x3.0
T1: (mm^3)
0.9375x0.9375x1.5
Flair: (mm^3)
0.9375x0.9375x3.0

Mainly ischemic origin
Histology: variable degree of tissue damage, tissue loss, demyelination, gliosis, focal cavities, incomplete infarcts

Fazekas et al., Neurology 1993;43:1683

Summary

- Physical and cognitive function and not age are the critical metrics for helping us to know “how frail we are”
- Family and faith communities can help aging patients and their health care team monitor these
- Religion that is pure and undefiled before God the Father is this: to visit orphans and widows in their affliction, and to keep oneself unstained from the world. James 1:27