Frailty

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Objectives

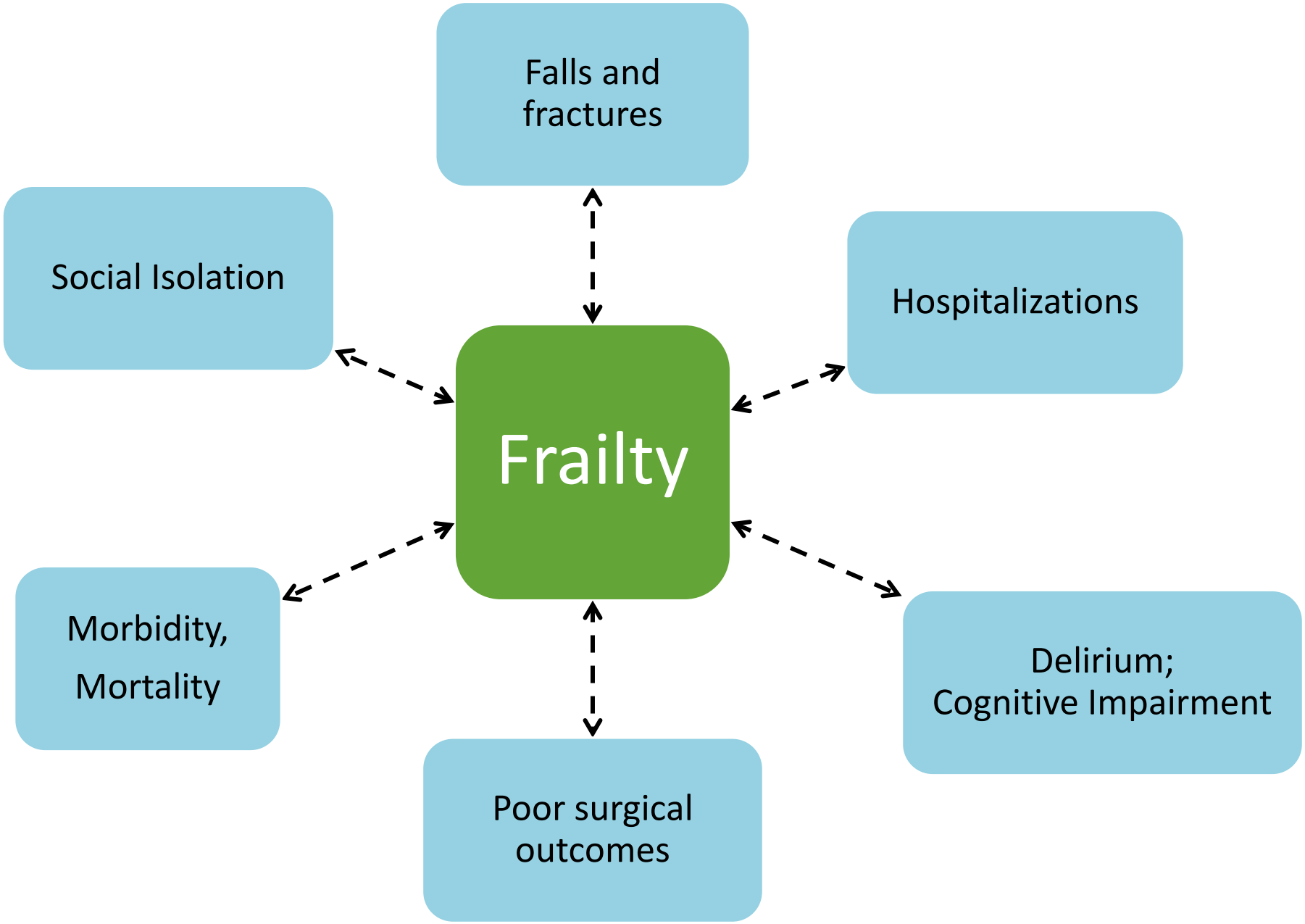
Understand frailty as a clinical syndrome and its implications on health outcomes.

Assess frailty using standardized tools across the lifespan.

Implement frailty assessment to personalize comprehensive care.

Identify evidence-based interventions to address frailty.

Meet Anna C. Peters



Hoogendijk EO, Afilalo J, Ensrud KE, Kowal P, Onder G, Fried LP. Frailty: implications for clinical practice and public health. Lancet. 2019 Oct 12;394(10206):1365-1375. doi: 10.1016/S0140-6736(19)31786-6. PMID: 31609228.

Utility of Frailty Assessments

Frail patients are more vulnerable to adverse effects of treatment.
These assessments help us risk stratify during:

1. Acute illness
2. Oncology treatment
3. Trauma care
4. Pre-operative planning
5. Chronic disease management (eg, diabetes, hypertension, etc.)

Identifying frailty enables tailoring of interventions and alignment of treatment with patient goals and life expectancy.

What is Frailty?

Frailty Phenotype (eg, Fried Scale): uses 5 pre-defined physical/biologic criteria

Frailty Indexes: non-specific accumulation of health deficits

Frailty Indicators (eg, Clinical Frailty Scale): multidimensional approach

What is Frailty?

Frailty Phenotype (eg, Fried Scale): uses 5 pre-defined physical/biologic criteria

Characteristic	Criteria for Physical Frailty[b]
Weight loss	Lost >10 pounds unintentionally last year
Exhaustion	Felt last week that "everything I did was an effort" or "I could not get going"
Slowness	Time to walk 15 feet (cutoff depends on sex and height)
Low activity level	Expends <270 kcal/week
Weakness	Grip strength measured using hand dynamometer (cutoff depends on sex, BMI)

[a] Syndrome present when ≥3 characteristics identified
[b] For specific measures and details for determining frailty criteria, see Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype.

Frailty Indexes: non-specific accumulation of health deficits

Frailty Indicators (eg, Clinical Frailty Scale): multidimensional approach

What is Frailty?

Frailty Phenotype (eg, Fried Scale): uses 5 pre-defined physical/biologic criteria

Frailty Indexes: non-specific accumulation of health deficits
(FI = number present/number assessed,
ranges from 0.0 to 1.0; frailty is likely when FI approaches 0.7)

Frailty Indicators (eg, Clinical Frailty Scale): multidimensional approach

What is Frailty?

Frailty Phenotype (eg, Fried Scale): uses 5 pre-defined physical/biologic criteria

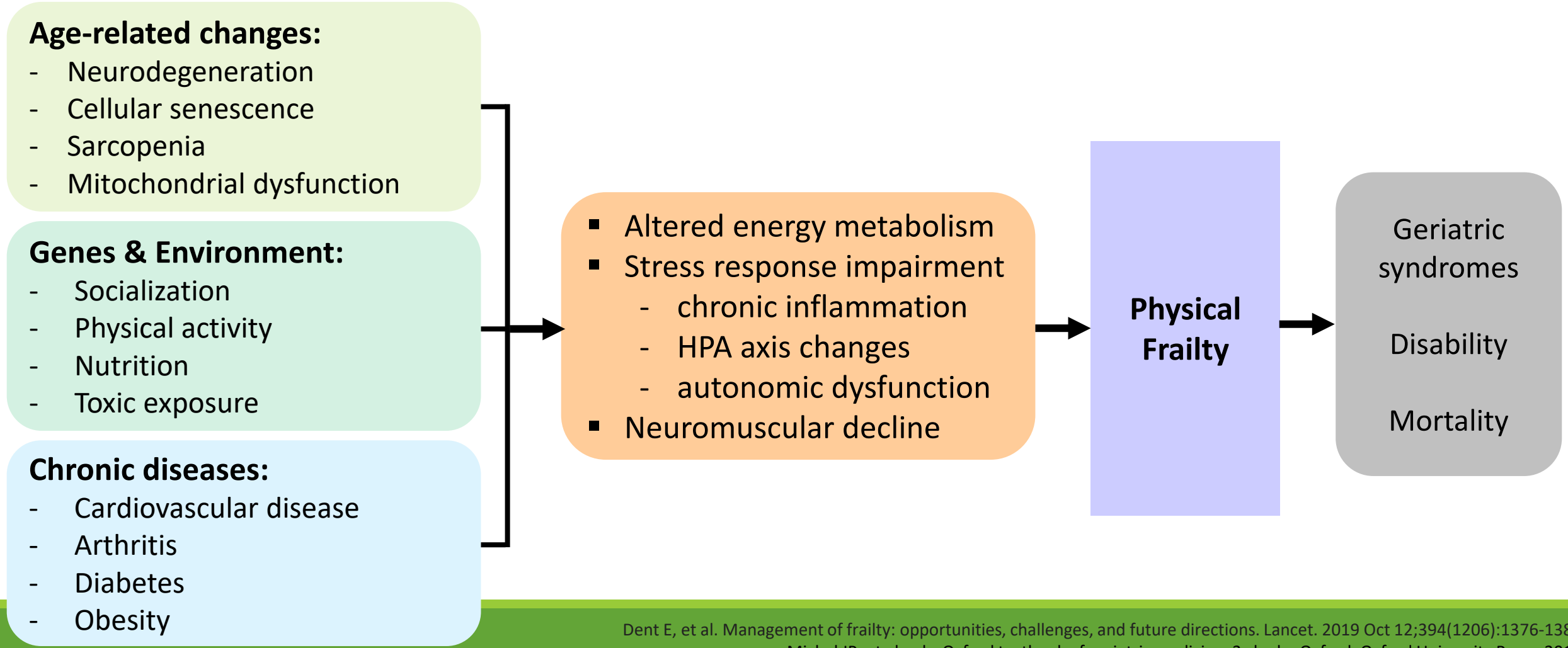
Frailty Indexes: non-specific accumulation of health deficits

Frailty Indicators (eg, **Clinical Frailty Scale**): multidimensional approach

1	VERY FIT	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
2	FIT	People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g., seasonally.
3	MANAGING WELL	People whose **medical problems are well controlled**, even if occasionally symptomatic, but often are **not regularly active** beyond routine walking.
4	LIVING WITH VERY MILD FRAILTY	Previously "vulnerable," this category marks early transition from complete independence. While **not dependent** on others for daily help, often **symptoms limit activities.** A common complaint is being "slowed up" and/or being tired during the day.
5	LIVING WITH MILD FRAILTY	People who often have **more evident slowing**, and need help with **high order instrumental activities of daily living** (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.
6	LIVING WITH MODERATE FRAILTY	People who need help with **all outside activities** and with **keeping house.** Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.
7	LIVING WITH SEVERE FRAILTY	**Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).
8	LIVING WITH VERY SEVERE FRAILTY	Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
9	TERMINALLY ILL	Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise living with severe frailty.** (Many terminally ill people can still exercise until very close to death.)

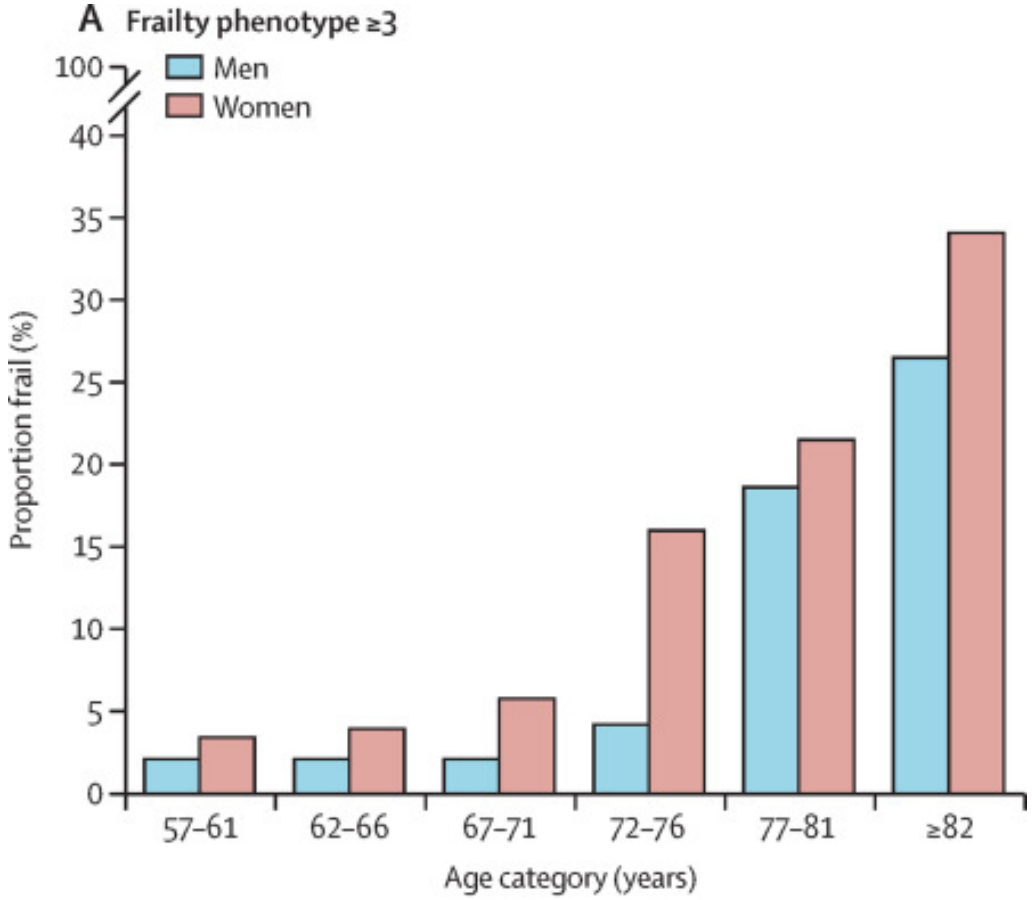
Moorhouse P, Rockwood K. Frailty and its quantitative clinical evaluation R Coll Physicians Edinb. 2012;42:333-340.

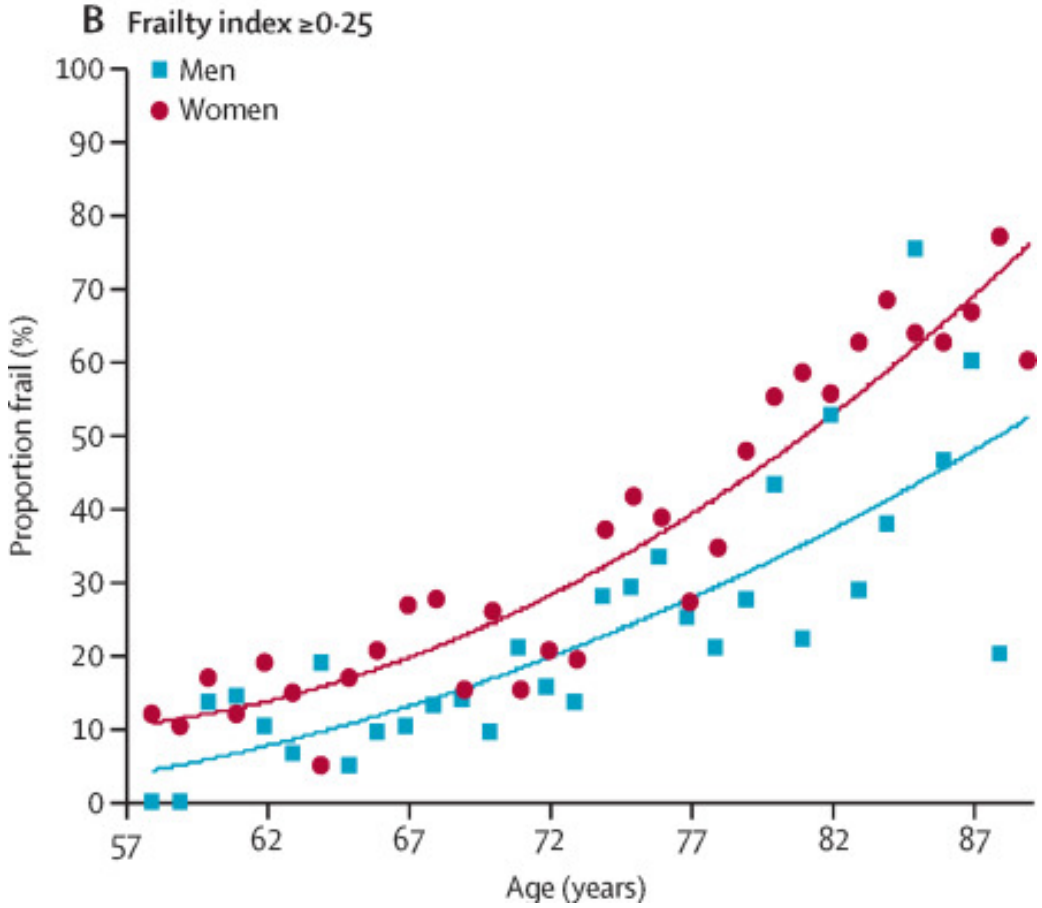
Frailty: Multi-Dimensional Biology



Dent E, et al. Management of frailty: opportunities, challenges, and future directions. Lancet. 2019 Oct 12;394(1206):1376-1386.
Michel JP, et al, eds. Oxford textbook of geriatric medicine, 3rd edn. Oxford: Oxford University Press, 2017.

Frailty & Aging





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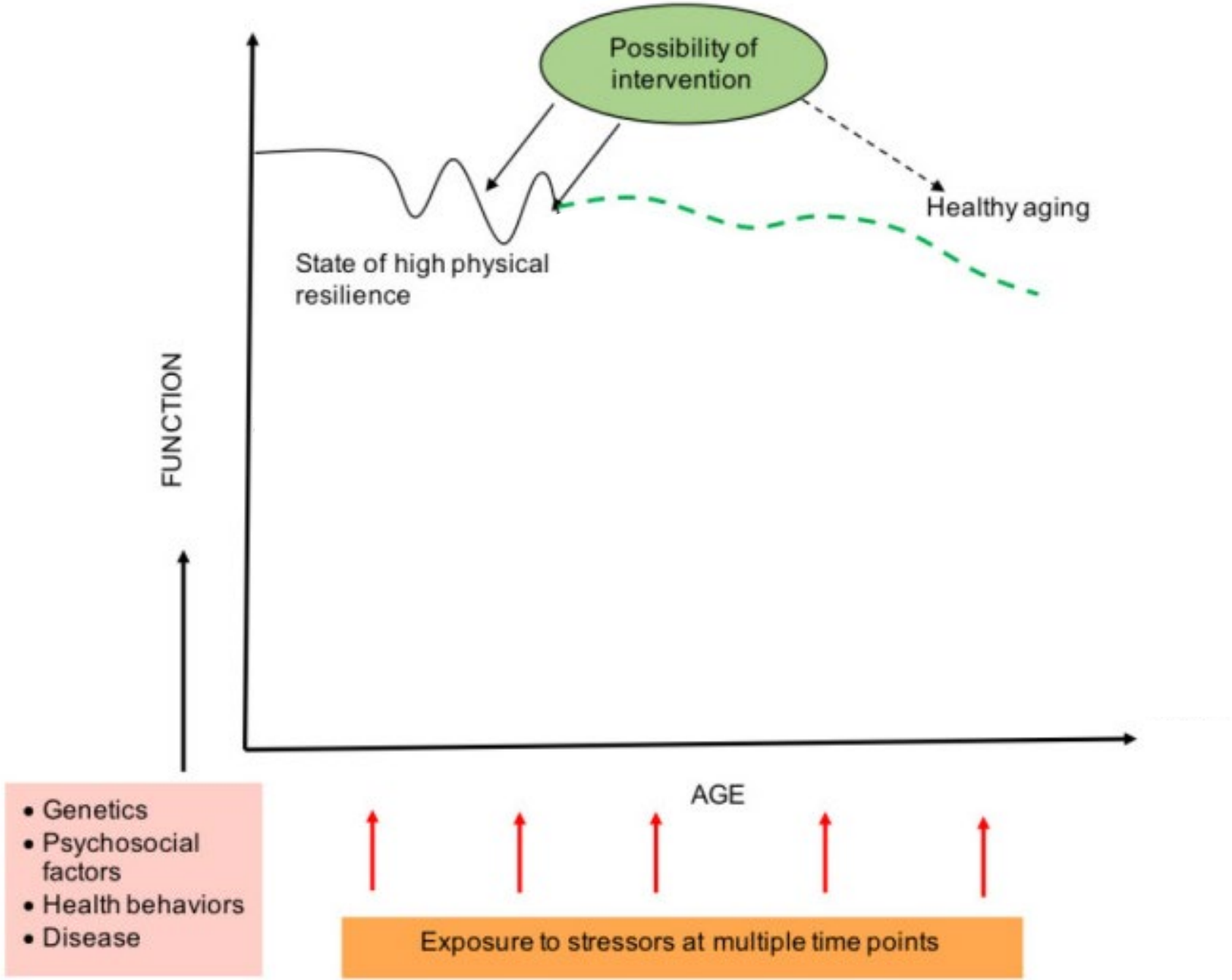
Aging is universal and heterogeneous



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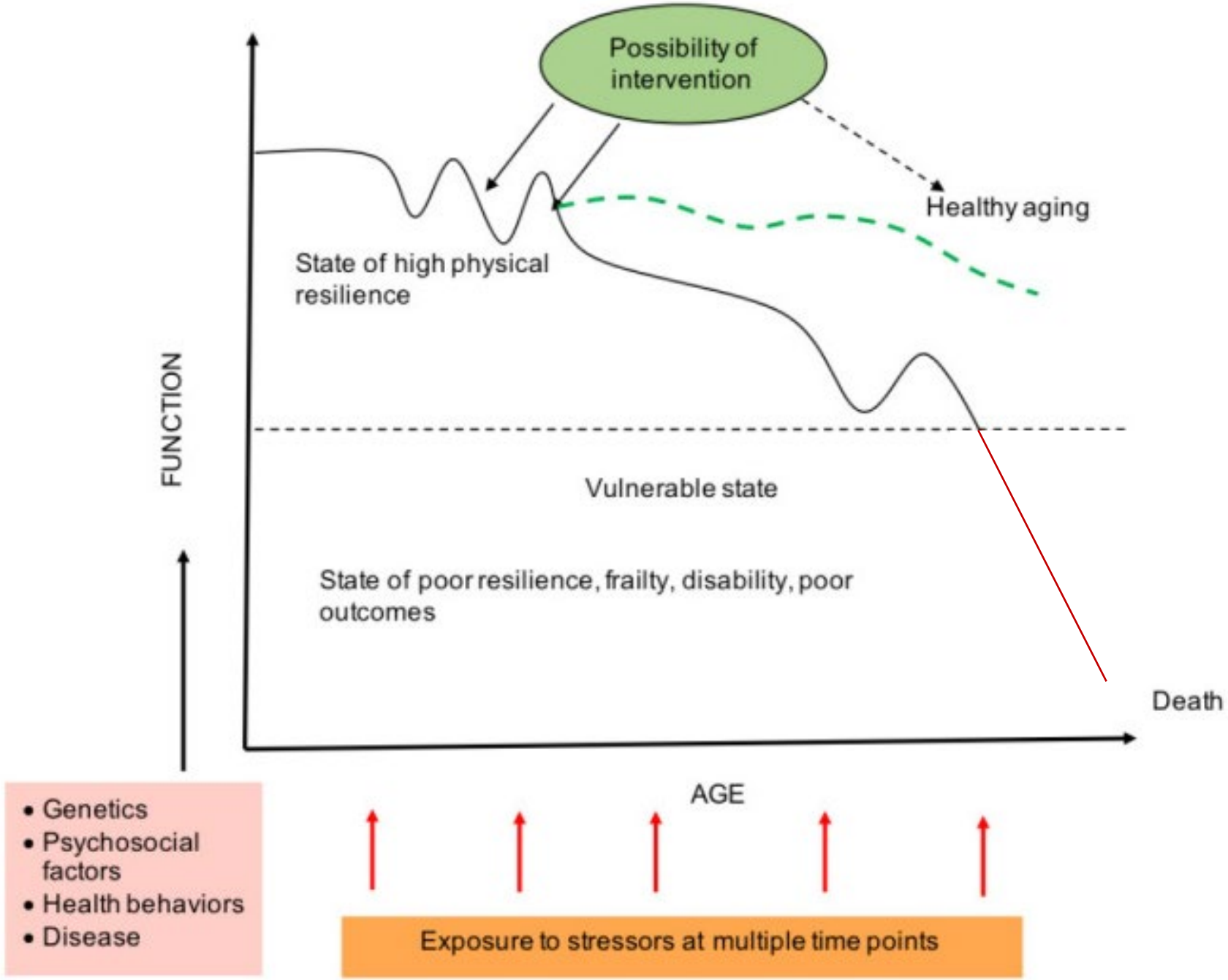

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Comprehensive Geriatric Assessment (CGA)

Activities of daily living (ADLs)
Mobility
Cognition
Vision
Hearing
Continence
Nutrition/Weight
Mood
Polypharmacy
Social history
Advance care planning

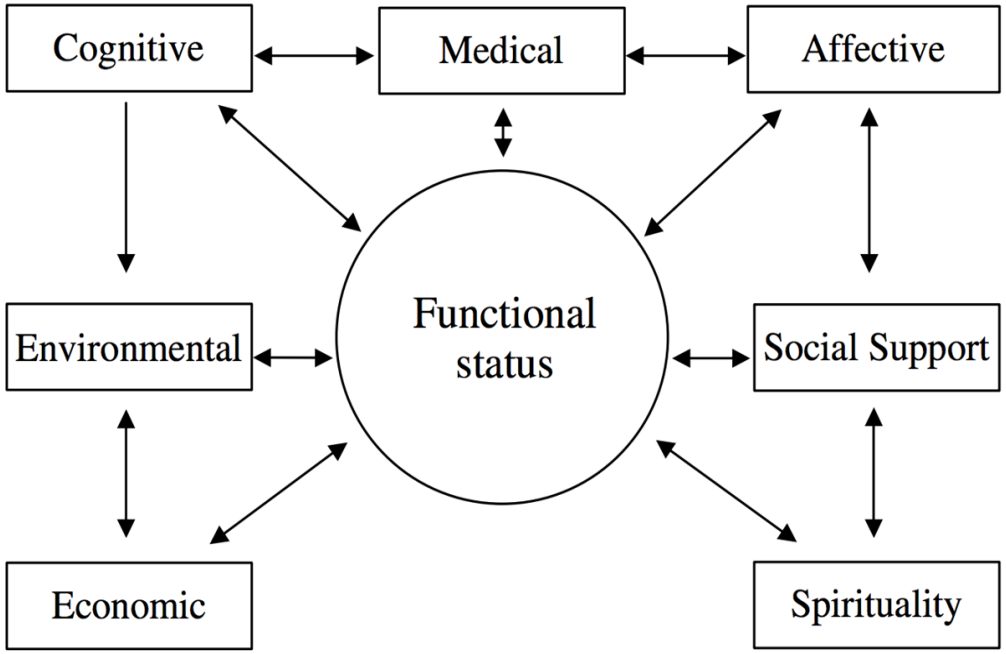


Fig 1. Interacting dimensions of geriatric assessment.

FRAIL Questionnaire

Fatigue	"Are you Fatigued?"
Resistance	"Do you have difficulty walking up 1 flight of stairs?"
Aerobic	"Do you have difficulty walking 1 city block?"
Illness	"Do you have more than 5 illnesses/health conditions?:
Loss of weight:	"Have you lost more than 5% of your weight in the past 6 months?"

Robust (score=0), Prefrail (score=1-2), and Frail (score=3-5)

Gleason LJ, et al. FRAIL Questionnaire Screening Tool and Short-Term Outcomes in Geriatric Fracture Patients. J Am Med Dir Assoc. 2017 Dec 1;18(12):1082-1086. doi: 10.1016/j.jamda.2017.07.005. Epub 2017 Aug 31. PM

30-second Sit-to-Stand Test

Strongly associated with frailty and increased risk of falls.

Count the number of times the patient comes to a full standing position in 30 seconds.

Chair Stand
Below Average Scores

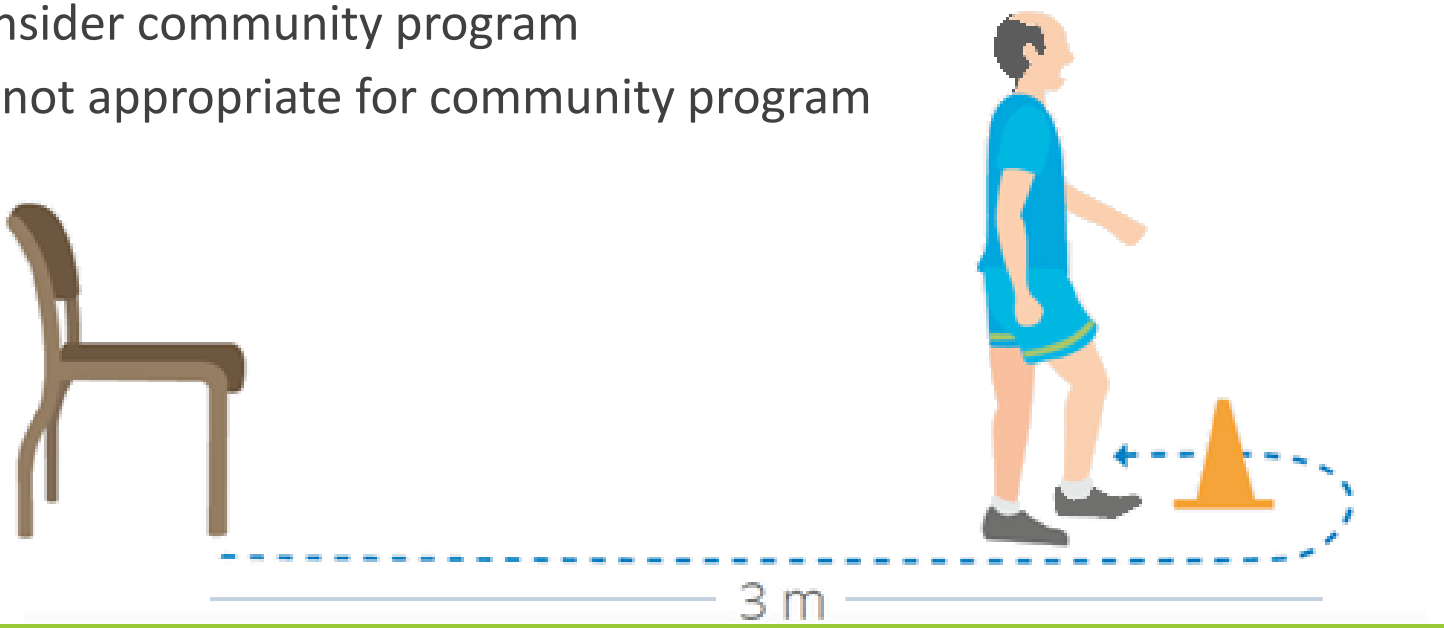
AGE	MEN	WOMEN
60-64	< 14	< 12
65-69	< 12	< 11
70-74	< 12	< 10
75-79	< 11	< 10
80-84	< 10	< 9
85-89	< 8	< 8
90-94	< 7	< 4

Timed-Up-and-Go

Rise without using arms, walk 3 meters, and return.

Scoring:

- <10s: low risk, encourage regular exercise
- 10-19s: moderate risk
- 20-29s: high risk, consider community program
- >30s: very high risk, not appropriate for community program



[Podsiadlo D 1991]

Social Determinants of Health

	Fit	Prefrailty	Frailty	End-Stage Frailty
Frailty Score	Fried frailty phenotype, 0 points Deficit-accumulation frailty index of <0.10 Score on Clinical Frailty Scale, 1–3	Fried frailty phenotype, 1 or 2 points Deficit-accumulation frailty index of 0.10 to <0.20 Score on Clinical Frailty Scale, 4	Fried frailty phenotype, 3 or 4 points Deficit-accumulation frailty index of 0.20 to <0.55 Score on Clinical Frailty Scale, 5–7	Fried frailty phenotype, 5 points Deficit-accumulation frailty index of ≥0.55 Score on Clinical Frailty Scale, 8 or 9
Goal	Increase physiological reserve	Increase physiological reserve	Preserve physiological reserve and prevent avoidable stressors	Provide comfort
Lifestyle	Exercise and physical activity High-quality diet Social engagement	Exercise and physical activity High-quality diet (protein intake) Social engagement	Less intense exercise may be better tolerated High-quality diet (protein intake) Social engagement	Physical activity as tolerated Diet as tolerated Social engagement as tolerated
Disease Management	Apply disease-based guidelines	Apply disease-based guidelines	Consider trade-off between disease and treatment burden	Deescalate treatments
Preventive Care	Vaccination Cancer screening	Vaccination Cancer screening	Vaccination Individualize cancer screening (time to benefit vs. remaining life expectancy)	Vaccination Stop cancer screening
Interventions for Frailty		Treat reversible causes of frailty Exercise and physical activity Nutritional counseling and supplementation CGA and multidisciplinary intervention Comprehensive medication review	Treat reversible causes of frailty Rehabilitation (PT and OT) Nutritional counseling and supplementation CGA and multidisciplinary intervention Comprehensive medication review	Comprehensive medication review

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Recommendations:

Community-dwelling adults: aerobic exercise and muscle strengthening, with 30–60 min/session, 1–4 sessions per week.

Hospitalized older patients (supervised by PT): resistance training, with 20–90 min/session, 2–5 sessions per week.

Tai Chi improves muscle strength and balance.

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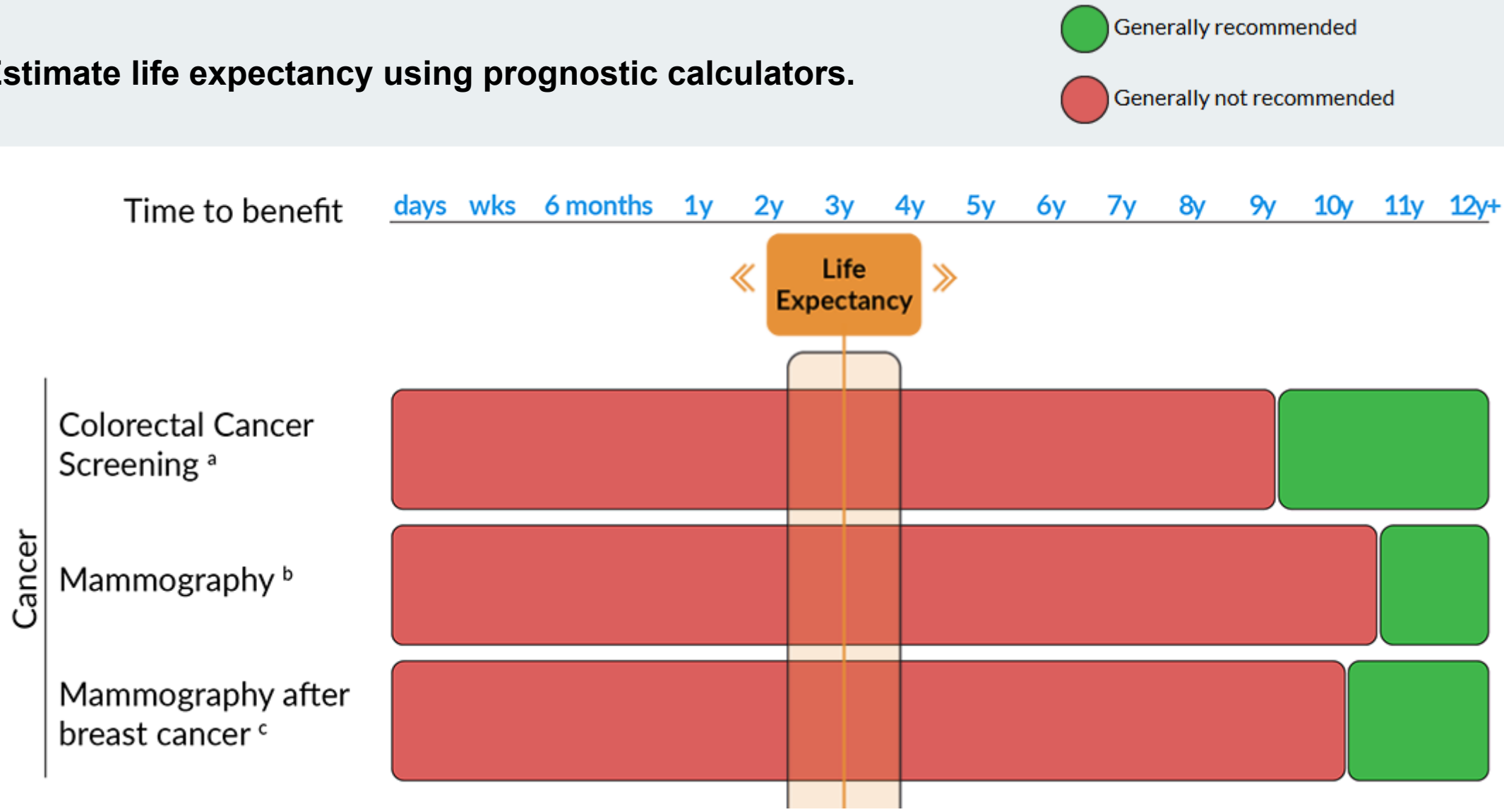
Estimate life expectancy using prognostic calculators.



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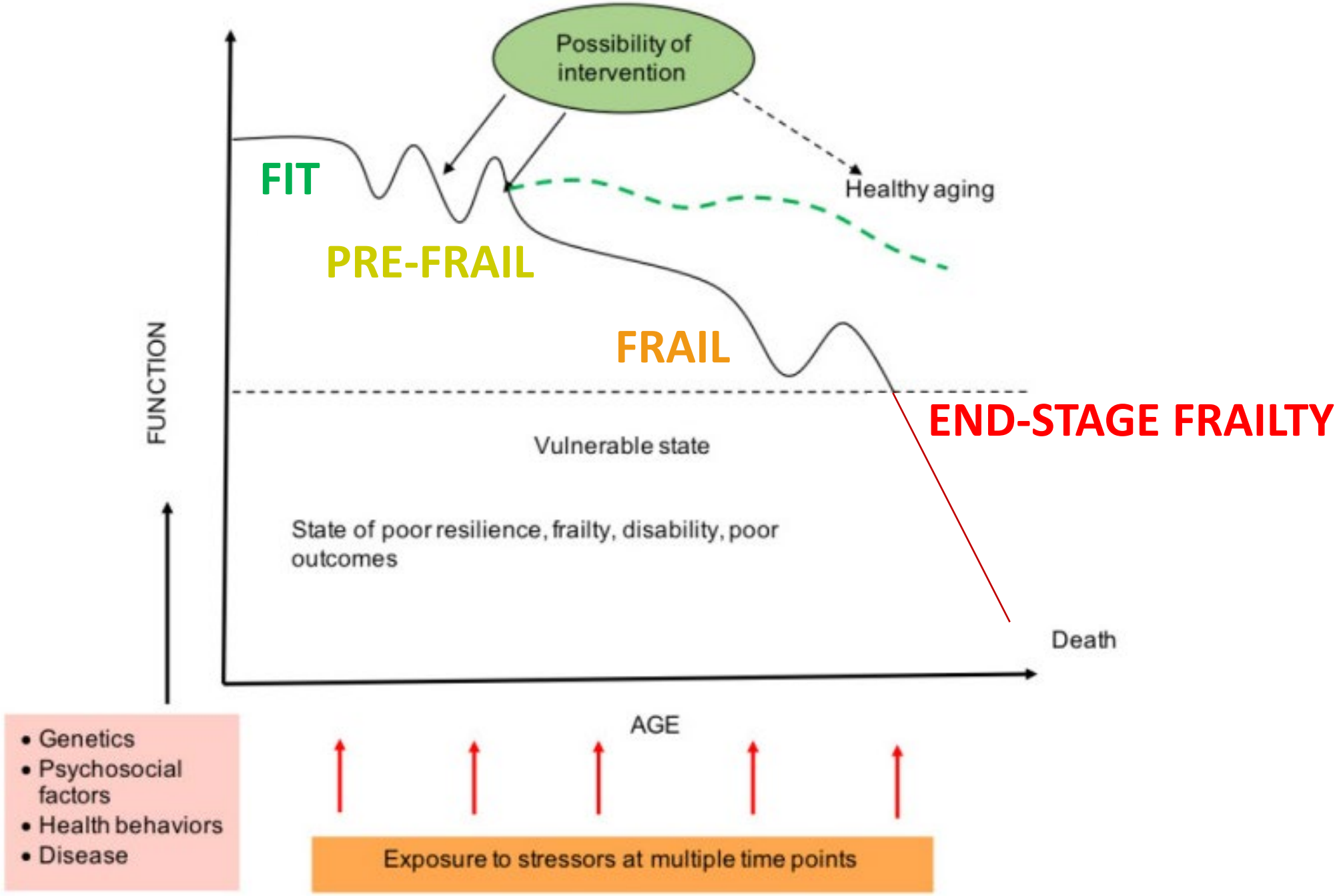
Comprehensive Geriatric Assessment (CGA): a multidimensional evaluation to determine an older person's medical, functional, physical, psychological, and socio-environmental status to develop a coordinated, integrated plan, appliable in both outpatient and inpatient settings.

Reduces unplanned hospitalizations in frail older adults.
Reduces delirium, in-hospital falls, and length-of-stay in hospitalized patients.

Veronese N, et al. Comprehensive geriatric assessment in older people: an umbrella review of health outcomes. Age Ageing 2022; 51: afac104.



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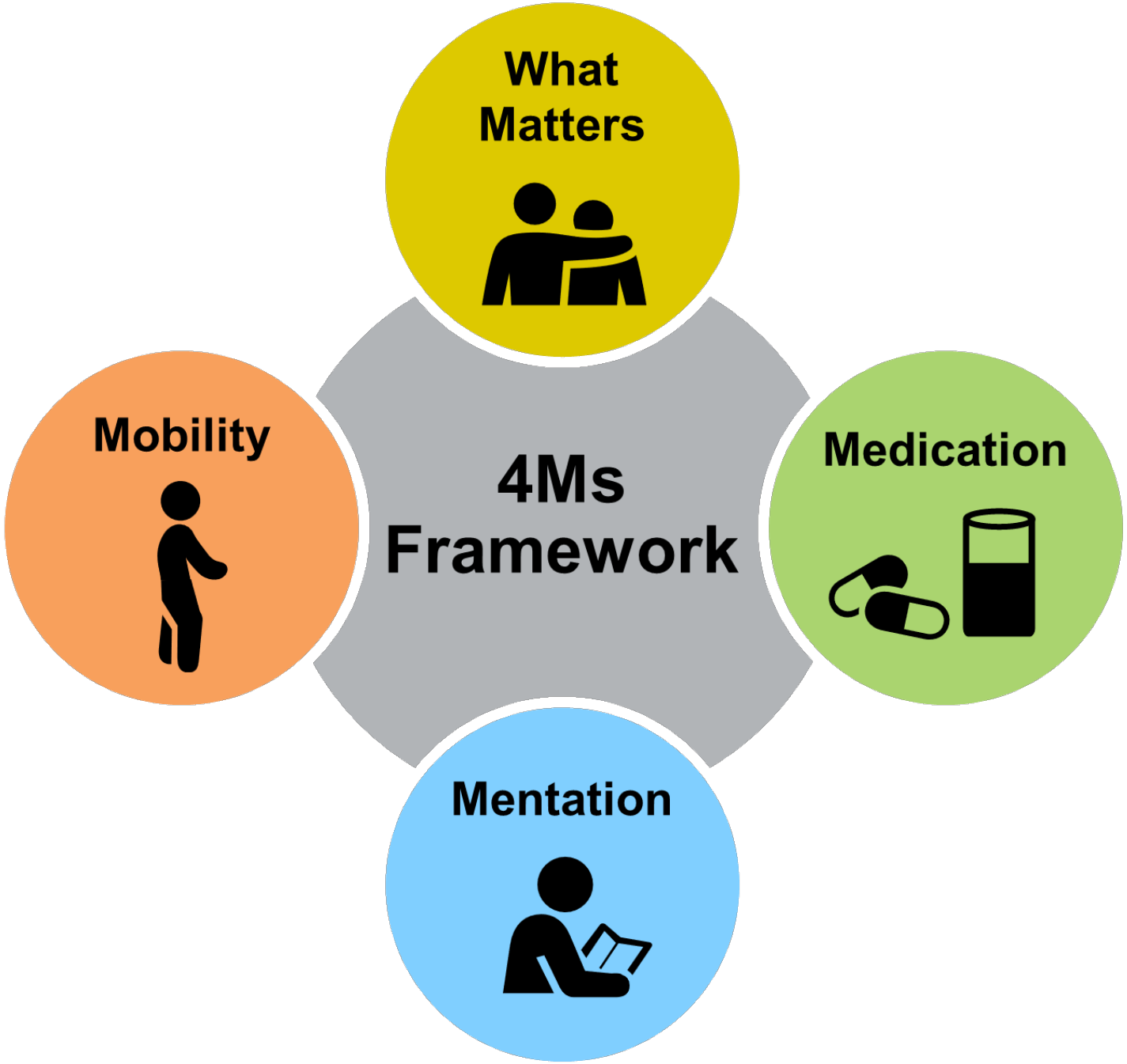
Age-Friendly Health Systems



Thank you!

Dr. Marissa Black, Puget Sound VA
Dr. Reema Navalurkar, Harborview Medical Center
University of Washington