

2021 Brock Institute Glennan Lecture

Internal Medicine Grand Rounds Virtual Presentation:

“The Future of Geriatric Care”

John Morley, MD, Professor of Medicine,
St. Louis University, St. Louis, MO

November 17, 2021

12:00 – 1:00 pm

*The Brock Institute Glennan Lecture established by the Cooke Fund
of the Hampton Roads Community Foundation*

M. Foscue Brock Institute for Community & Global Health

Established in 2012, the vision is to be a focal point for integrating EVMS' clinical, education and research programs to fulfill its vision of becoming the most community-oriented school of medicine and health professions in the nation.

Glennan Center

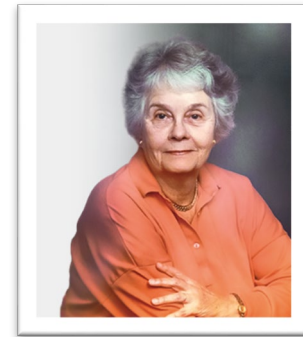
The Glennan Center for Geriatrics and Gerontology was established in 1995 with the mission is to integrate, coordinate and disseminate all age-related endeavors at EVMS.

Brock Institute Glennan Lecture

Established in 2015 through *The Cooke Fund of the Hampton Roads Community Foundation* to highlight the latest in geriatric academic research. Every year lecture series has brought world-renowned leaders in geriatric care to EVMS to share their knowledge with the students, faculty, community physicians and leaders in healthcare throughout Hampton Roads.



M. Foscue Brock, MD



Virginia Glennan Ferguson

Disclosure of Relevant Relationships with Relevant Commercial Companies/Organizations

Eastern Virginia Medical School endorses the Standards for Commercial Support of the Accreditation Council for Continuing Medical Education and the Guidelines of the Association of American Medical Colleges that the sponsors of continuing medical education activities and the speakers at these activities disclose relevant relationships with commercial companies whose products or services are discussed in educational presentations.

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John Morley, MD disclosed he is a consultant for Merck, Behringer, and Ingelheim. All potential relevant financial relationships have been mitigated.

Marissa Galicia-Castillo, MD disclosed she receives financial/material support from Senior Medical Consultants, LLC. All potential relevant financial relationships have been mitigated.

The Planning Committee disclosed they have no relevant financial relationships.

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Credit Designation

Eastern Virginia Medical School designates this live activity for a maximum of **1.00 AMA PRA Category 1 Credits™**. Physicians should only claim credit commensurate with the extent of their participation in the activity.



John Morley, MD

Professor of Medicine

St. Louis University

St. Louis, MO

Dr. Morley's Presentation

The Future of Geriatric Care

The Future of Age Friendly Primary Care



John Morley

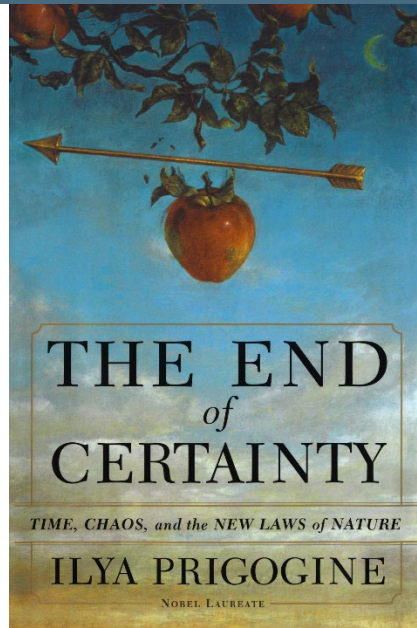
Saint Louis University
GERIATRICS

Funded by the GWEP from HRSA

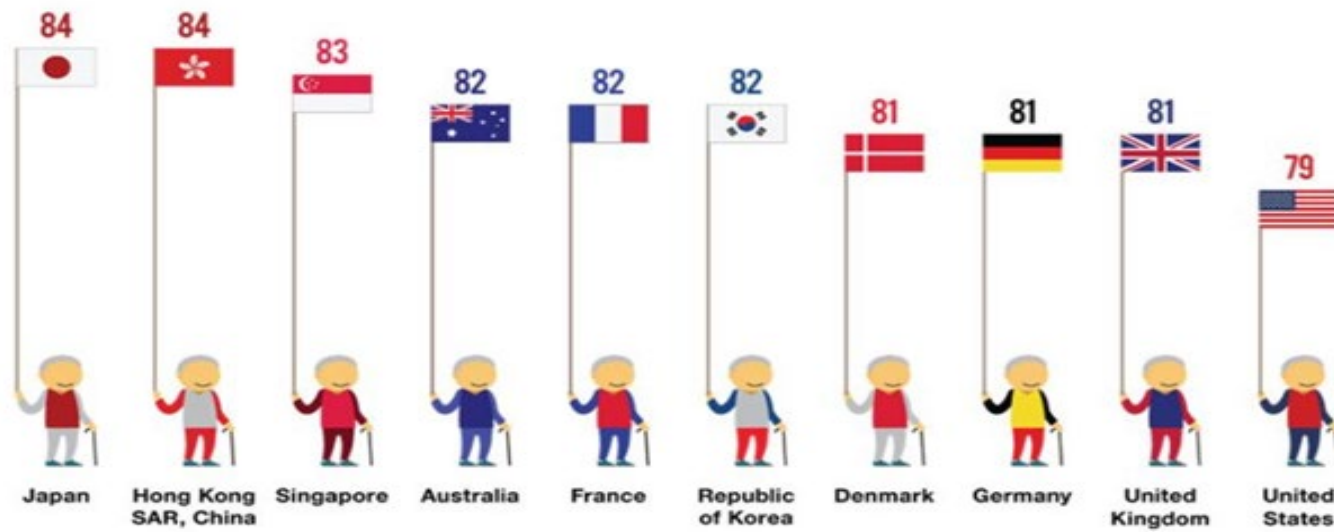


"The future is uncertain... but this uncertainty is at the very heart of human creativity."

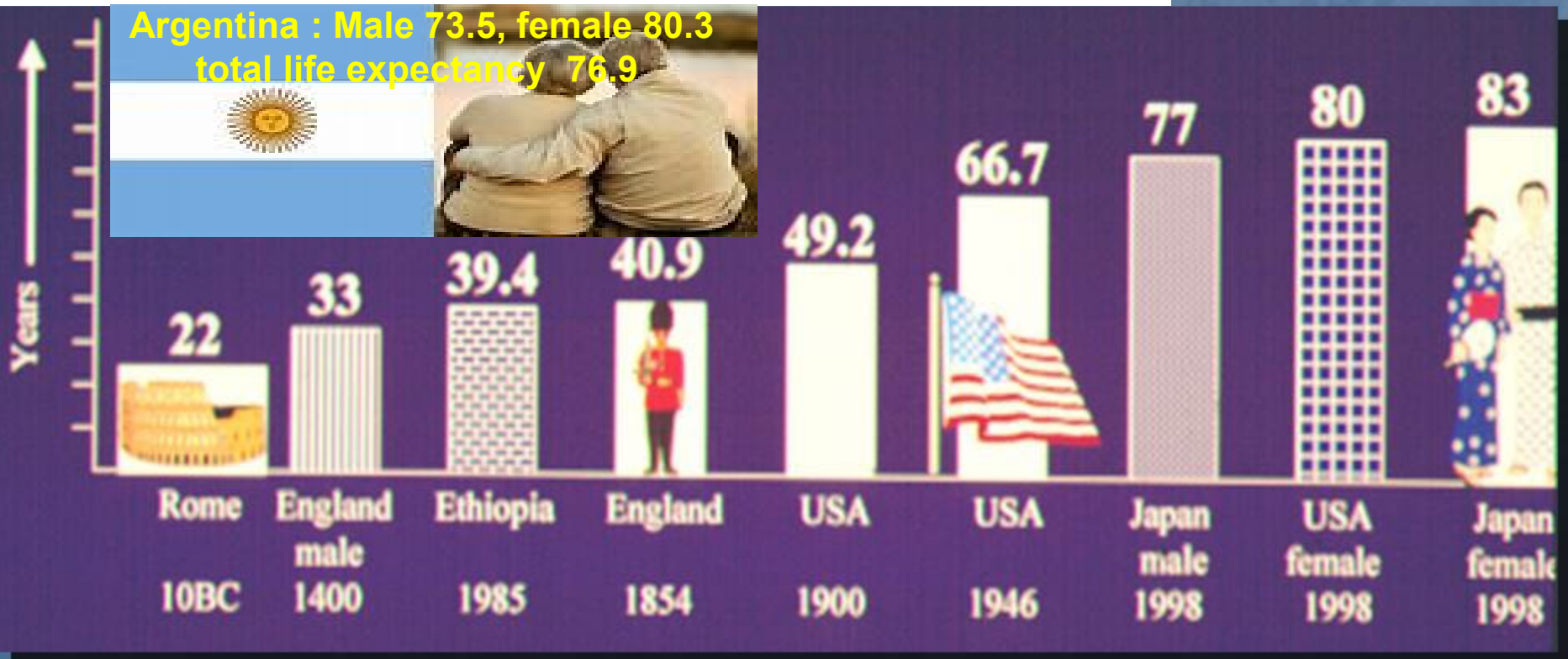
- Ilya Prigogine



[The Poet of Thermodynamics](#)



Jeanne Calment



The Times They Are Changing

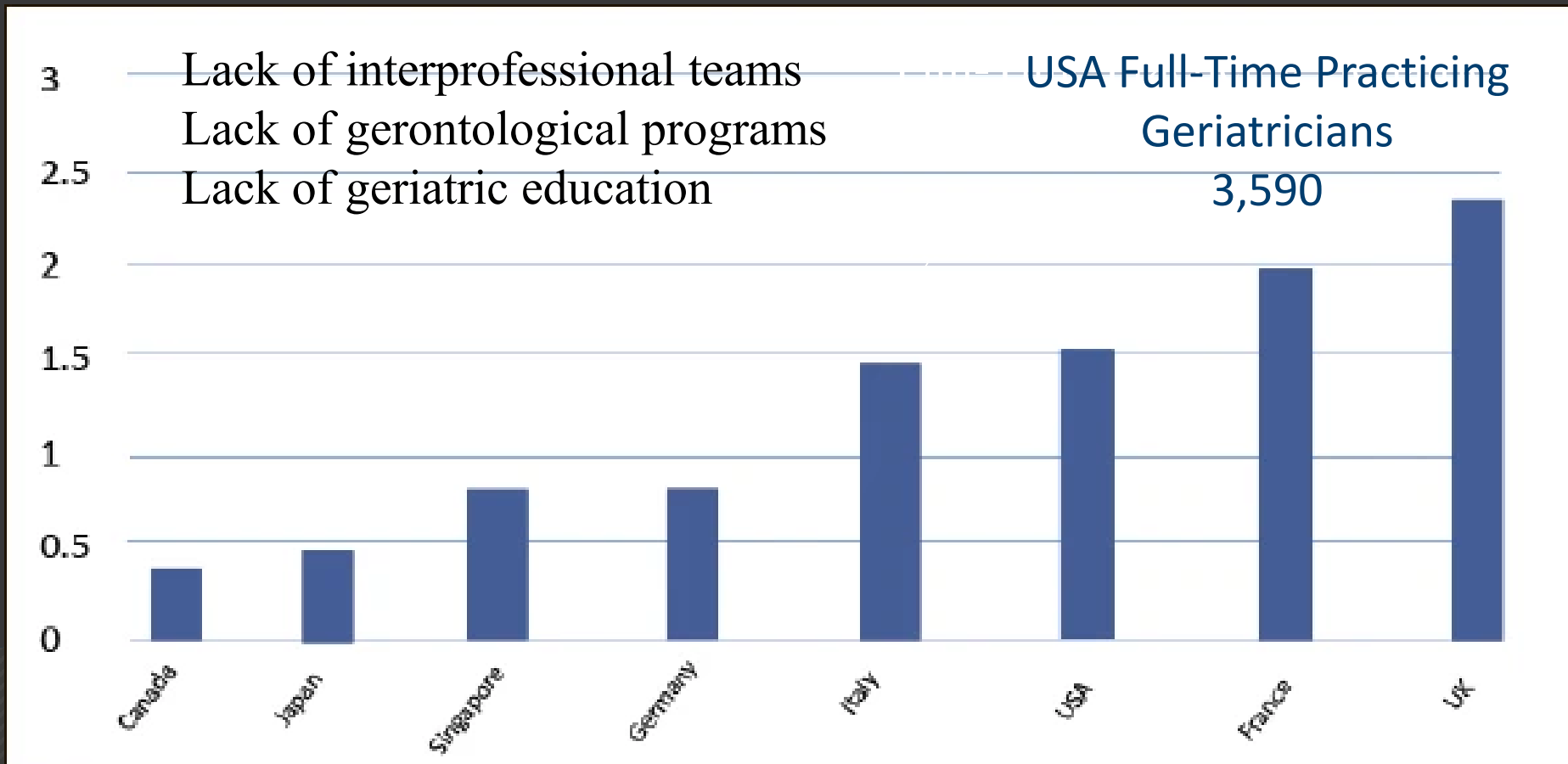
Come gather 'round people
Wherever you roam
And admit that the waters
Around you have grown
And accept it that soon
You'll be drenched to the bone
If your time to you
Is worth savin'
Then you better start swimmin'
Or you'll sink like a stone
For the times they are a-changin'

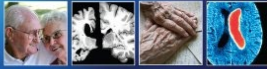


**There is an Aging Tsunami
And Old Age Medicine is different**

The shortage of geriatricians requires geriatric syndromes to be diagnosed and managed by primary care health professionals

GERIATRICIANS PER 10,000 POPULATION OVER 65





George Edward Day (1815-1872)

GERIATRICS



“I offer no apology for the publication of this volume. The subject is one of the highest importance, and yet it has been strangely overlooked during the last half-century by the physicians of all countries.”

Complicated vs Complex

Sending a woman or man to MARS



Managing a frail older person in hospital



Management of Frailty

WHY IS CARE SO COMPLEX FOR OLDER ADULTS?

- Transitions between care can be very complicated
- Finding meaningful non-pharmacological interventions is difficult
- Poor coordination between care providers
- Barriers of certain communication (language, hearing, speech)
- Limited recognition and treatment of geriatric syndromes



Primary, secondary and tertiary prevention
Requires a focus on human team care
Poorly reimbursed compared to medications



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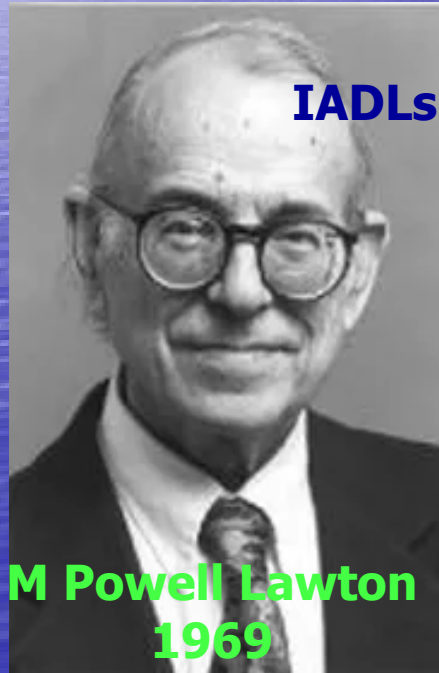




ADLs

**Sidney Katz
1963**

1	Do you go out by bus or train by yourself?	0.Yes	1.No
2	Do you go shopping to buy daily necessities by yourself?	0.Yes	1.No
3	Do you manage your own deposits and savings at the bank?	0.Yes	1.No
4	Do you sometimes visit your friends?	0.Yes	1.No
5	Do you turn to your family or friends for advice?	0.Yes	1.No
6	Do you normally climb stairs without using handrails or wall for support?	0.Yes	1.No
7	Do you normally stand up from a chair without any aids?	0.Yes	1.No
8	Do you normally walk continuously for 15 minutes?	0.Yes	1.No
9	Have you experienced a fall in the past year?	1.Yes	0.No
10	Do you have a fear of falling while walking?	1.Yes	0.No
11	Have you lost 2kg or more in the past 6 months?	1.Yes	0.No
12	Height: cm, weight: kg, BMI: kg/m ² If BMI is less than 18.5, this item is scored	1.Yes	0.No



IADLs

**M Powell Lawton
1969**

Barthel Index Scoring Form

Patient Name: _____ Rater Name: _____ Date: _____

<p>FEEDING 0 = unable 5 = needs help cutting, spreading butter, etc., or requires modified diet 10 = independent</p> <p>BATHING 0 = dependent 5 = independent (or in shower)</p> <p>GROOMING 0 = needs to help with personal care 5 = independent face/hair/teeth/shaving (implements provided)</p> <p>DRESSING 0 = dependent 5 = needs help but can do about half unaided 10 = independent (including buttons, zips, laces, etc.)</p> <p>BOWELS 0 = incontinent (or needs to be given enemas) 5 = occasional accident 10 = continent</p> <p>BLADDER 0 = incontinent, or catheterized and unable to manage alone 5 = occasional accident 10 = continent</p>	<p>TOILET USE 0 = dependent 5 = needs some help, but can do something alone 10 = independent (on and off, dressing, wiping)</p> <p>TRANSFERS (BED TO CHAIR AND BACK) 0 = unable, no sitting balance 5 = major help (one or two people, physical), can sit 10 = minor help (verbal or physical) 15 = independent</p> <p>MOBILITY (ON LEVEL SURFACES) 0 = immobile or < 50 yards 5 = wheelchair independent, including corners, > 50 yards 10 = walks with help of one person (verbal or physical) > 50 yards 15 = independent (but may use any aid; for example, stick) > 50 yards</p> <p>STAIRS 0 = unable 5 = needs help (verbal, physical, carrying aid) 10 = independent</p> <p>TOTAL SCORE= _____</p>
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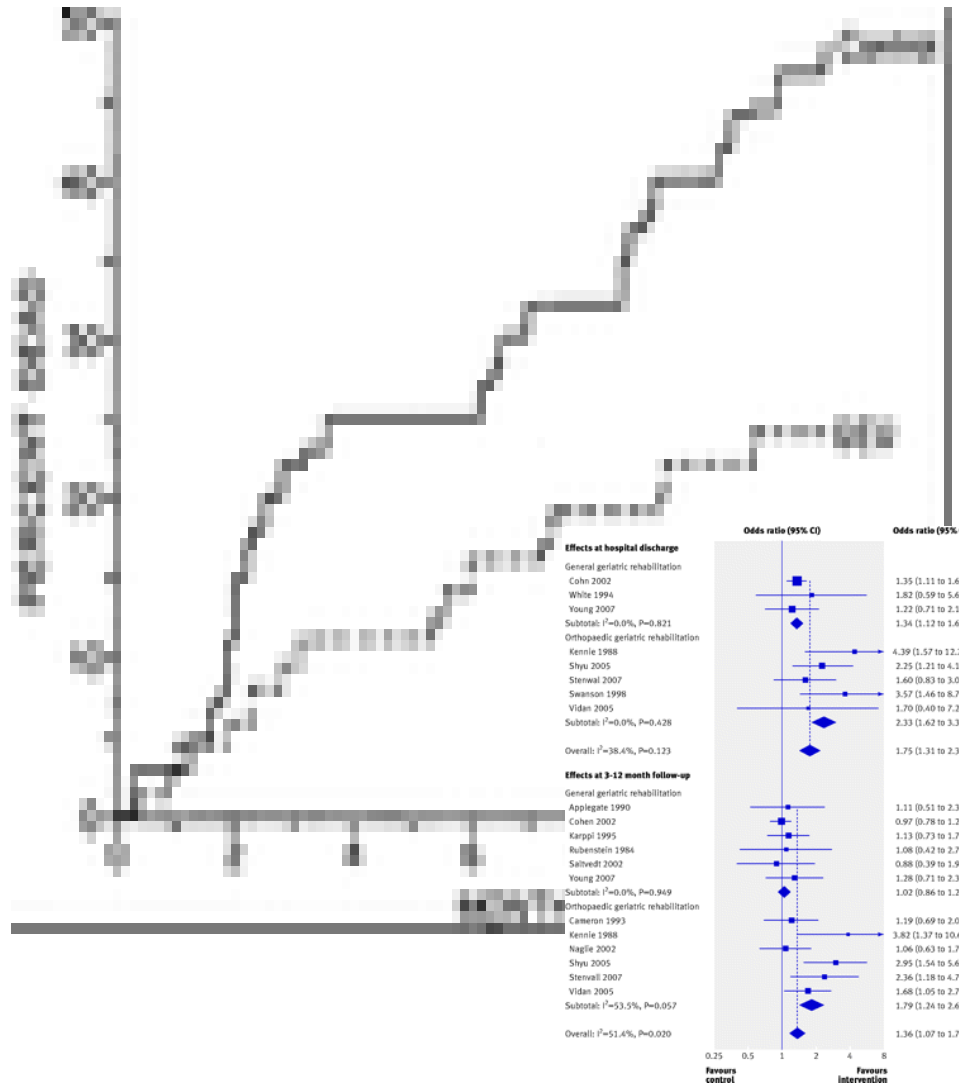
1965

difficulties eating tough foods compared to 6 months ago?	1.Yes	0.No
in your tea or soup recently?	1.Yes	0.No
experience having a dry month?	1.Yes	0.No
at least once a week?	0.Yes	1.No
more frequently compared to last year?	1.Yes	0.No
do your friends point out your memory loss? E.g. "You always ask the same question over and over again"?	1.Yes	0.No
do you look up phone numbers?	0.Yes	1.No
do you know today's date?	1.Yes	0.No
do you feel a lack of fulfillment in your daily life?	1.Yes	0.No
do you feel a lack of joy when doing the things you used to enjoy?	1.Yes	0.No
do you feel difficulty in doing what you could do easily before?	1.Yes	0.No
do you feel helpless?	1.Yes	0.No
do you feel tired without a reason?	1.Yes	0.No

[N Engl J Med.](#) 1984 Dec 27;311(26):1664-70.

Effectiveness of a geriatric evaluation unit. A randomized clinical trial.

[Rubenstein LZ](#), [Josephson KR](#), [Wieland GD](#), [English PA](#), [Sayre JA](#), [Kane RL](#).



At one year, patients who had been assigned to the geriatric unit had much **lower mortality than controls (23.8 vs. 48.3 per cent, P less than 0.005)** and were less likely to have initially been **discharged to a nursing home (12.7 vs. 30.0 per cent, P less than 0.05)** or to have spent any time in nursing home **(26.9 vs. 46.7 per cent, P less than 0.05).**



THE SCALE

Second Half 2014



“Prof Morley- you are the originator of the FRAIL scale but it does not work for RACFs? We need to develop a screening tool that works for RACFs”

Dec 2014

Frailty in nursing homes: The FRAIL-NH Scale. Kaehr E, Visvanathan R, Malmstrom T, Morley JE. JAMDA 2015; 16(2):87-9. Epub 2014 Dec 31.

2016-2017

*Validation Studies- part of stated aim FB2 Projects in CRE
USA- Kaehr...Morley. JNHA 2016
Australia- Theou, Bell, Morley..Visvanathan... JAGS 2016; J Gerontol 2018
France- Theou, Cesari, Visvanathan*

2019-2022

*Frailty In Residential Sector Over Time (FIRST) Study
Visvanathan, Jadcak, Bell et. al. in partnership with Resthaven Inc.
Baseline- n=561; 31% frail and 56.7% most frail (FRAIL-NH)*

THE GUIDELINE

2019

*Healthy Quality and Safety Commission New Zealand.
Frailty care guides
'Nga artohy maimoa hauwarea'*

2020

*26 papers published
Australia, USA, Belgium, France, South Korea, Hong Kong, Taiwan, China
[review underway by Shin/Bell]*



FRAIL-NH Scale

	0	1	2
Energy	Good/Excellent	Fair	Poor
Transferring	Moves in and out of bed or chair unassisted. Mechanical transferring aides are acceptable	Needs help in moving from bed to chair or requires complete transfer	Needs help in moving from bed to chair or requires complete transfer & KATZ score <3
Mobility	Goes out	Alle to get out of bed/chair but does not go out	Bed or chair bound
Continence	Exercises complete self control over urination and defecation	Is partially or totally incontinent of bowel or bladder	Is partially or totally incontinent of bowel or bladder & KATZ score <3
Weight Loss (last 3 months)	No weight loss	1-3kg (2.2 and 6.6 lbs) or does not know	>3 kg (6.6 lbs)
Feeding	Gets food from plate into mouth without help. Preparation of food may be done by another person	Needs partial or total help with feeding or requires parental feeding	Needs partial or total help with feeding or requires parental feeding & KATZ score <3
Dressing	Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners. May have help tying shoes	Needs help with dressing self or needs to be completely dressed	Needs help with dressing self or needs to be completely dressed & KATZ score <3

Total Score 0-14: 0-1 non frail, 2-5 frail, 6-14 severely frail



FRAIL-NH Scale St Louis Kaehr, Malmstrom, Pape and Morley Deceased or Hospice

- Prefrail: 2.37 (0.77 – 7.30) p=0.135
- Frail : 3.96 (1.44-10.87) p<0.007



FRAIL-MDS predicts Mortality: Hong Kong



Using a cut-off point of 4, being frail was associated with a 176% higher risk of **mortality** in the total sample (HR, 2.76; 95% confidence interval [CI] 2.13-3.57)

Similar results were obtained in the **no ADL** dependence group, with an HR of being frail of 2.00 (95% CI, 1.41-2.83).



A frail resident was twice as likely to experience **incident fall** (HR, 2.00; 95% CI, 1.41-2.83) **hospitalization** (HR, 2.35; 95% CI, 1.57-3.54), **worsening ADL** (HR, 3.73; 95% CI, 2.69-5.16),

Global Age-friendly Cities: A Guide

Age-Friendly Collaborating Cities



AMERICAS
Argentina, La Plata
Brazil, Rio de Janeiro
Canada, Halifax
Canada, Portage la Prairie
Canada, Seamich
Canada, Sherbrooke
Costa Rica, San Jose
Jamaica, Kingston
Jamaica, Montego Bay
Mexico, Cancun
Mexico, Mexico City
Puerto Rico, Mayaguez
Puerto Rico, Ponce
USA, New York
USA, Portland

EUROPE
Germany, Ruhr
Ireland, Dundalk
Italy, Udine
Russia, Moscow
Russia, Tuymazy
Switzerland, Geneva
Turkey, Istanbul
UK, Edinburgh
UK, London

AFRICA
Kenya, Nairobi

SOUTH-EAST ASIA
India, New Delhi
India, Udaipur

WESTERN PACIFIC
Australia, Melbourne
Australia, Melville
China, Shanghai
Japan, Himeji
Japan, Tokyo

EASTERN MEDITERRANEAN
Jordan, Amman
Lebanon, Tripoli
Pakistan, Islamabad

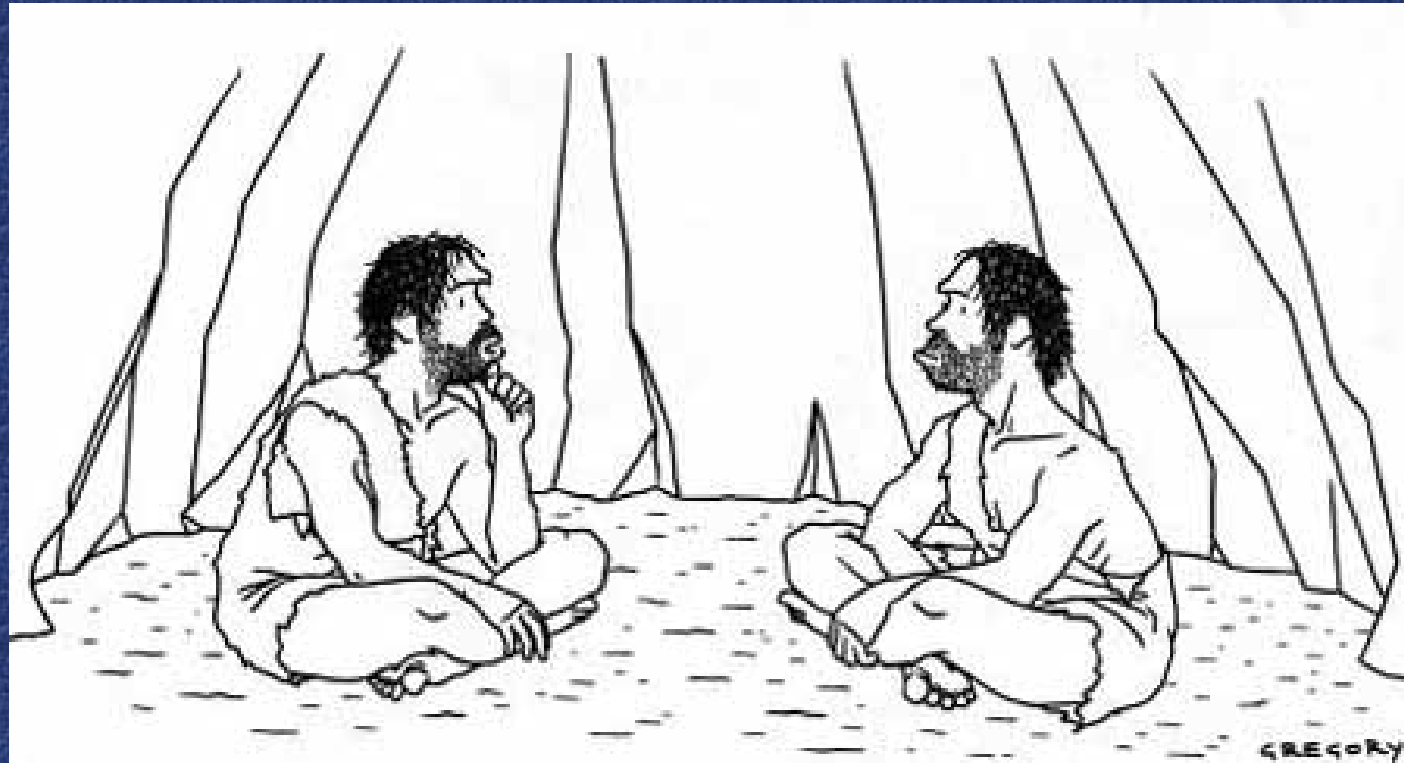


**World Health
Organization**

**Over 500 cities in
37 cities since 2006**

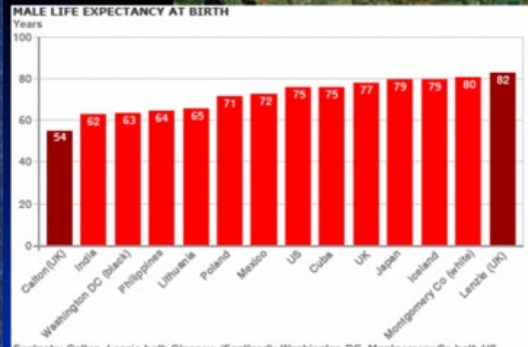


Does environment interact with physiology?



"Something's just not right—our air is clean, our water is pure, we all get plenty of exercise, everything we eat is organic and free-range, and yet nobody lives past thirty."

Environment Modulates Longevity

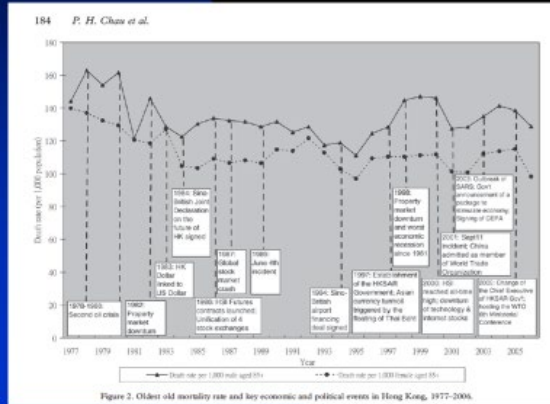


Footnote: Callon, Lenzie both Glasgow (Scotland); Washington DC, Montgomery Co both US

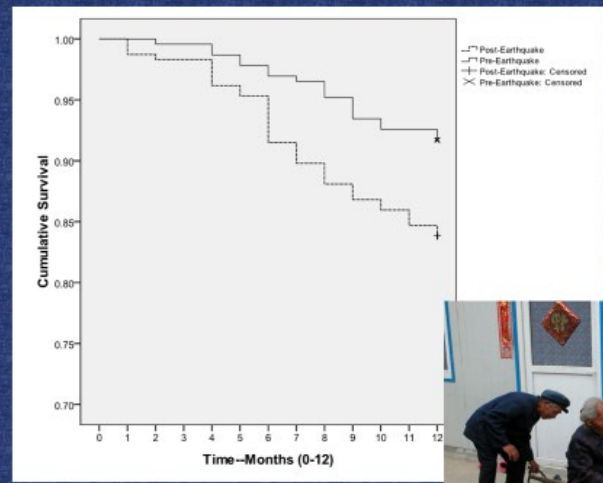
Partick, Govan, Glasgow, Business Park, Shettleston, Glasgow East Investment Park, Rutherglen, Clydesmill, Stepps, Gamkirk, Gar...

Male 65.9 to 81.1
Female 73.5 to 86

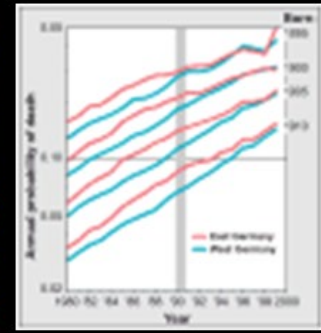
Stressful Social Events increase Mortality in oldest-old males in Hong Kong



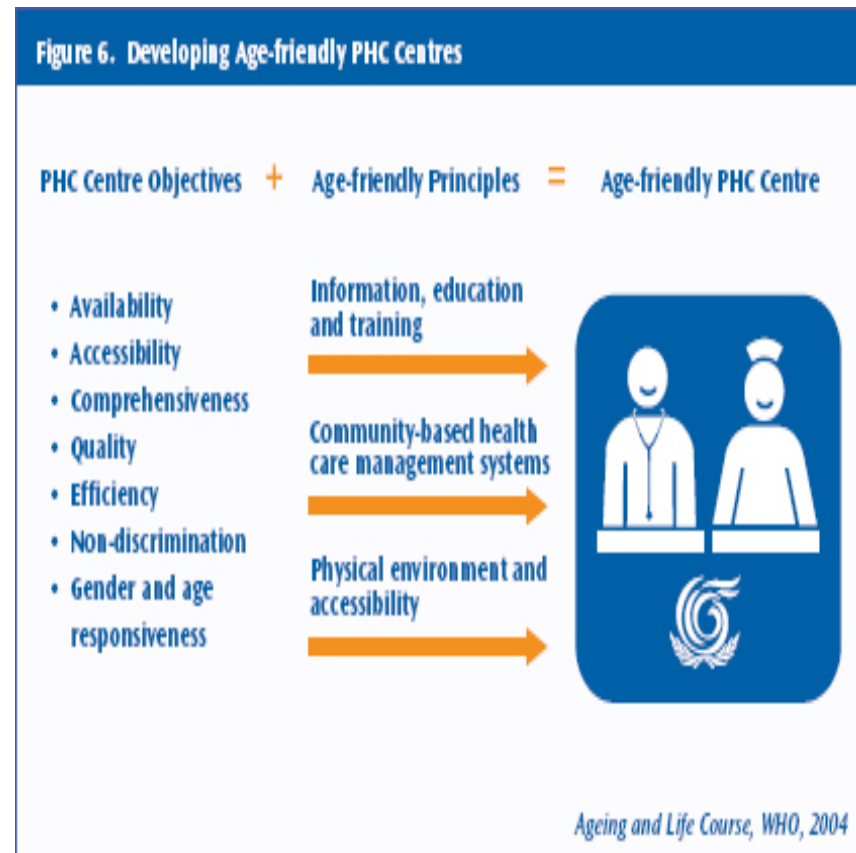
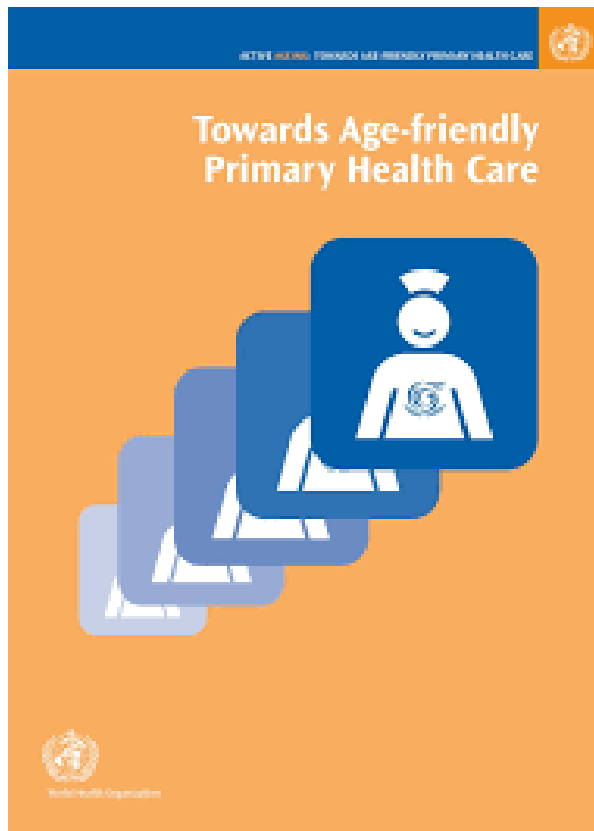
Outcomes in Nonagerians after Earthquake in Wenchuan, May 12 2008



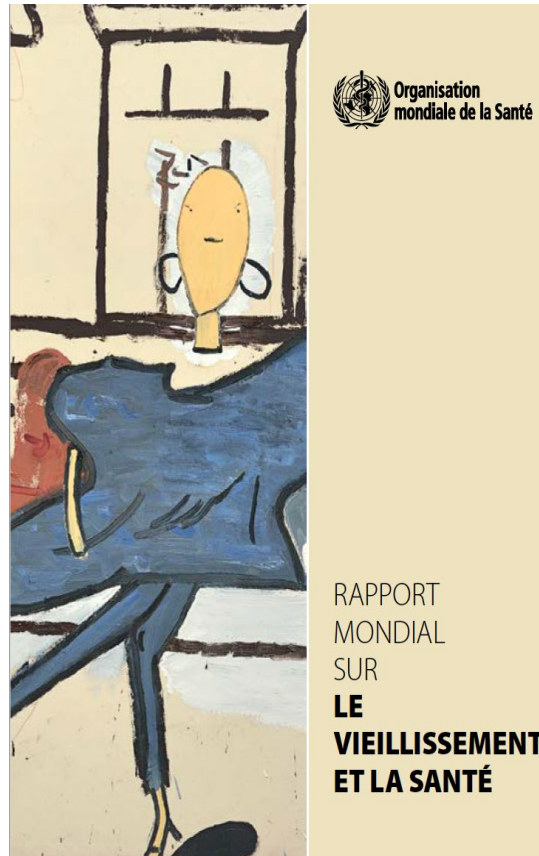
After the fall of the Berlin Wall East Germans rapidly developed a survival equivalent to West Germans



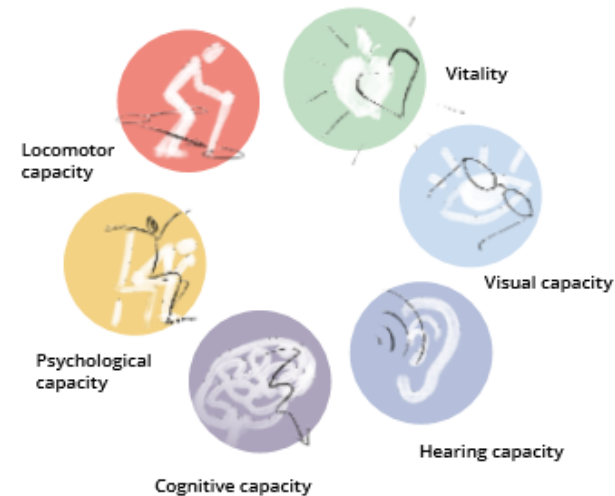
The objectives of the age-friendly primary health care project are to: improve the primary health care response for older persons. sensitize and educate primary health care workers about the specific needs of older clients



ICOPE Program - WHO



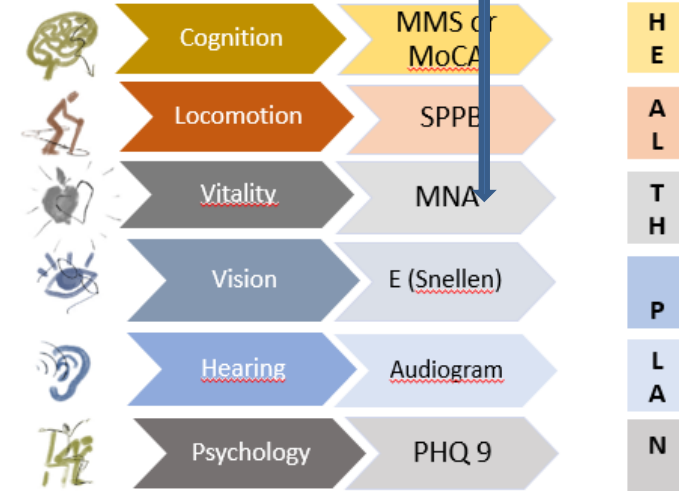
- **Objective:** allow everyone to age in good health, it means, to continue to be and to do what they have reason to value
- **Optimizing Intrinsic Capacity** (the composite of all the physical and mental capacities of an individual) covering 6 domains



ICOPE Program WHO



Priority conditions associated with declines in intrinsic capacity	Tests	Assess fully any domain with a checked circle
COGNITIVE DECLINE (Chapter 4)	1. Remember three words: flower, door, rice (for example) 2. Orientation in time and space: What is the full date today? Where are you now (home, clinic, etc)? 3. Recalls the three words?	<input type="radio"/> Wrong to either question or does not know <input type="radio"/> Cannot recall all three words
LIMITED MOBILITY (Chapter 5)	Chair rise test: Rise from chair five times without using arms. Did the person complete five chair rises within 14 seconds?	<input type="radio"/> No
MALNUTRITION (Chapter 6)	1. Weight loss: Have you unintentionally lost more than 3 kg over the last three months? 2. Appetite loss: Have you experienced loss of appetite?	<input type="radio"/> Yes <input type="radio"/> Yes
VISUAL IMPAIRMENT (Chapter 7)	Do you have any problems with your eyes: difficulties in seeing far, reading, eye diseases or currently under medical treatment (e.g. diabetes, high blood pressure)?	<input type="radio"/> Yes
HEARING LOSS (Chapter 8)	Hears whispers (whisper test) or Screening audiometry result is 35 dB or less or Passes automated app-based digits-in-noise test	<input type="radio"/> Fail
DEPRESSIVE SYMPTOMS (Chapter 9)	Over the past two weeks, have you been bothered by - feeling down, depressed or hopeless? - little interest or pleasure in doing things?	<input type="radio"/> Yes <input type="radio"/> Yes



**H
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Engaging communities and supporting caregivers

Ensuring referral pathway and monitoring





Know and act on each older adult's specific health outcome goals and care preferences



Older adults in every setting of care move safely in order to maintain function and to do what matters



If medications are necessary, use age-friendly medications that do not interfere with what matters, mentation or mobility



Identify and manage depression, dementia and delirium across care settings



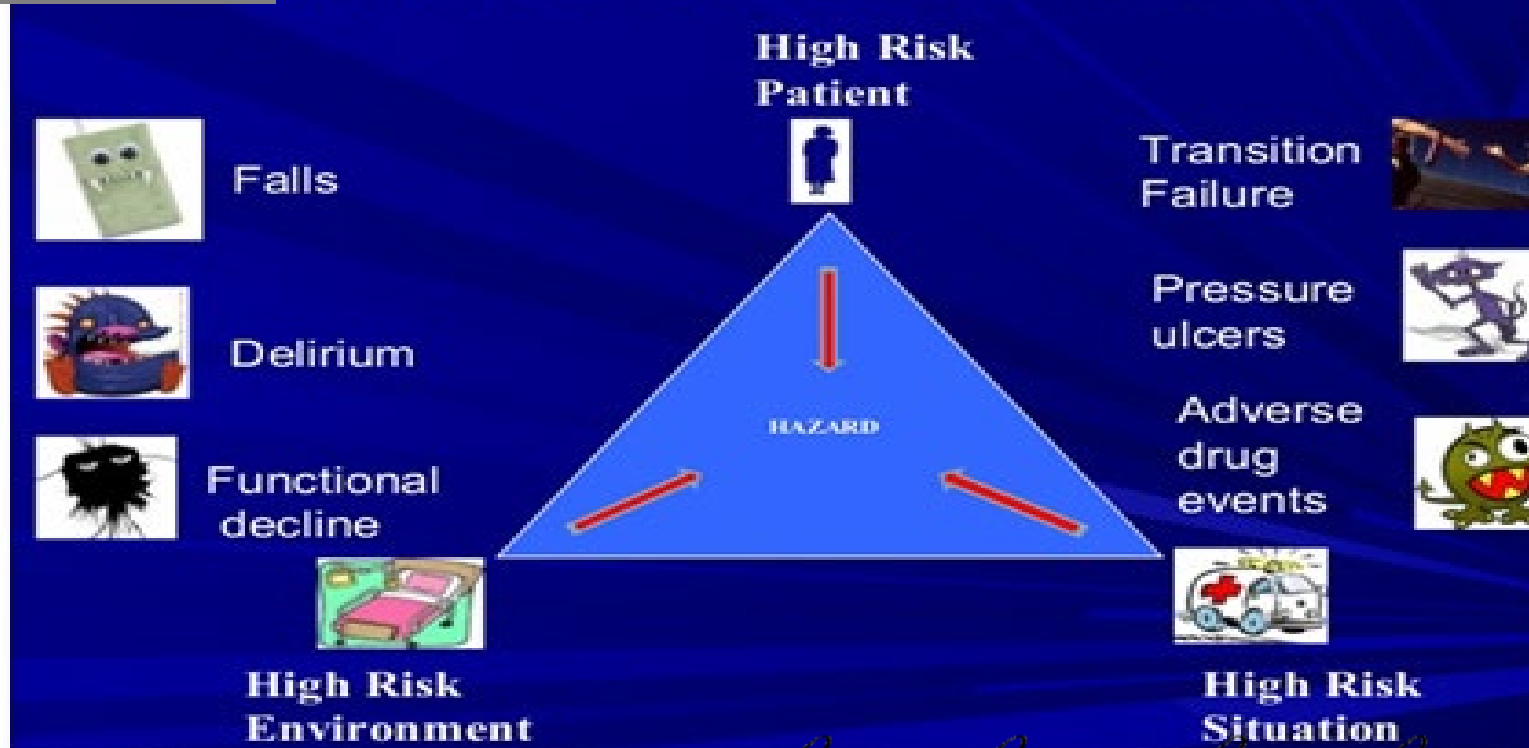
An initiative of The John A. Hartford Foundation and the Institute for Healthcare Improvement (IHI) in partnership with the American Hospital Association (AHA) and the Catholic Health Association of the United States (CHA).

Age Friendly Health Systems



- ### Hospital
- Acute Care for Elderly
 - Delirium Intensive Care Unit
 - Physical Exercise Programs
 - Help Program : Daily visitor and mobilisation programs
 - Rapid Geriatric Assessment

Hazards of Hospitalization



Acute Care for the Elderly



Inouye
1990

Lanyard Card of CAM

CONFUSION ASSESSMENT METHOD (CAM)
Answer these four questions:
 1) Was the onset acute and does behaviour fluctuate?
AND
 2) Is there evidence of inattention?
 (difficulty focusing attention, shifting and keeping track)
AND EITHER
 3) Is there evidence of disorganized thinking? (Incoherent, rambling, illogical flow of ideas)
OR
 4) Is there evidence of disorganized thinking?
 (i.e. any state other than alert) (Alterations include hyperalert, lethargic, stuporous and comatose)

FEATURES 1 AND 2, AND EITHER 3 OR 4 ARE REQUIRED FOR A DIAGNOSIS OF DELIRIUM



4AT

Assessment test for delirium & cognitive impairment

Patient name: _____
 Date of birth: _____
 Patient number: _____
 Date: _____ Time: _____
 Taster: _____

(I) ALERTNESS CIRCLE
 This section patients may be unable to answer (eg. difficult to raise either hand/foot above during assessment) or respond inappropriately. Observe the patient if unable, attempt to talk with speech in gentle tone or structure. Ask the patient to state their name and address to assist rating.

Normal fully alert, but not alert (through disorientation) 0
 Mild impairment for 10 seconds after waking, but normal 1
 Clearly abnormal 4

(II) ABILITY
 Age, date of birth, floor (name of the hospital or building), current year:

No mistakes 0
 1 mistake 1
 2 or more mistakes/mistakes 2

(III) ATTENTION
 Ask the patient: "I want to see the months of the year in backwards order, starting in December." (To assist with understanding use pencil or help. At the month before December? Is permitted)
 Months of the year backwards: _____
 Answers 7 months or more correctly 0
 Starts but scores < 7 months, refuses to start 1
 Unintelligible (cannot read) or no answer (drowsy, inattentive) 2

(IV) ACUTE CHANGE OR FLUCTUATING COURSE
 Evidence of rapid (day) or fluctuating (day) awareness, risk _____
 0
 1
 2

TOTAL SCORE

GUIDANCE NOTES
 The 4AT is a simple, rapid, bedside test to identify delirium. It is designed to be used by nurses, doctors, and other healthcare professionals. It is easy to use and can be completed in under 2 minutes. It is a validated test for delirium and is used in many hospitals and care homes. It is a simple, rapid, bedside test to identify delirium. It is designed to be used by nurses, doctors, and other healthcare professionals. It is easy to use and can be completed in under 2 minutes. It is a validated test for delirium and is used in many hospitals and care homes.

Alasdair
MacLullich

Reversible Causes of MCI/Dementia

- D rugs (digoxin, theophylline, cimetidine, anticholinergic)
- E motional (depression)
- M etabolic (hypothyroidism, B12)
- E yes and ears (sensory isolation)
- N ormal Pressure Hydrocephalus (ataxia, incontinence, and dementia)
- T umor or other space-occupying lesion
- I nfection (syphilis, chronic infections)
- A trial fibrillation (vitamin B12 deficiency)/Alcoholism
- S leep Apnea



Geriatr Nurs. 1999 May-Jun;20(3):147-52.
NICHE Faculty.



Flaherty
2003

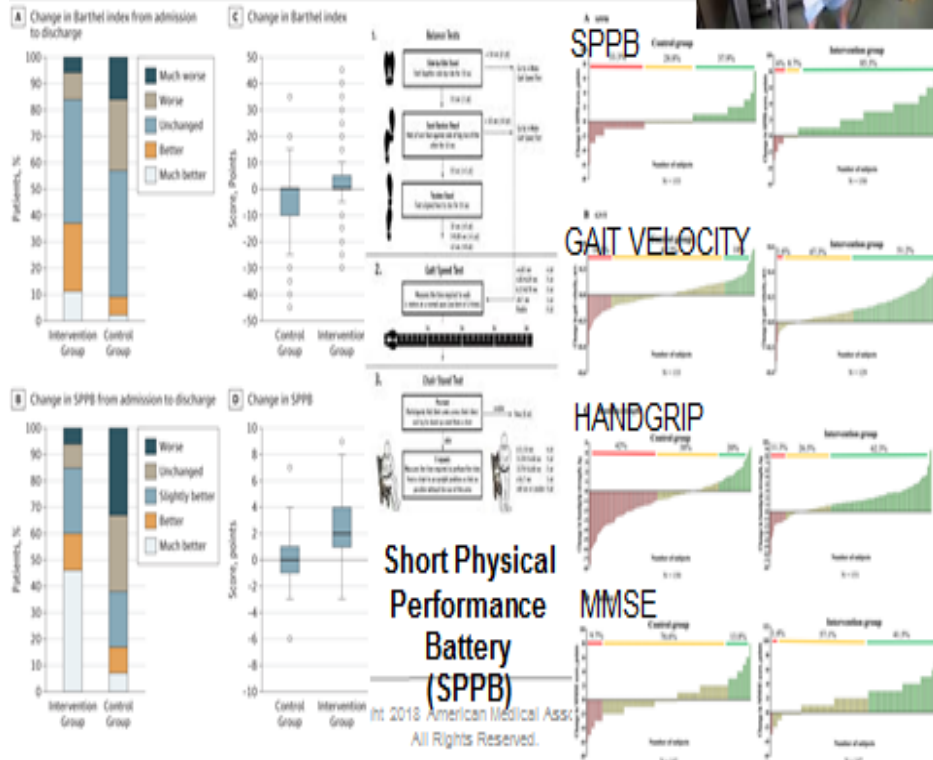


EXERCISE IN HOSPITAL

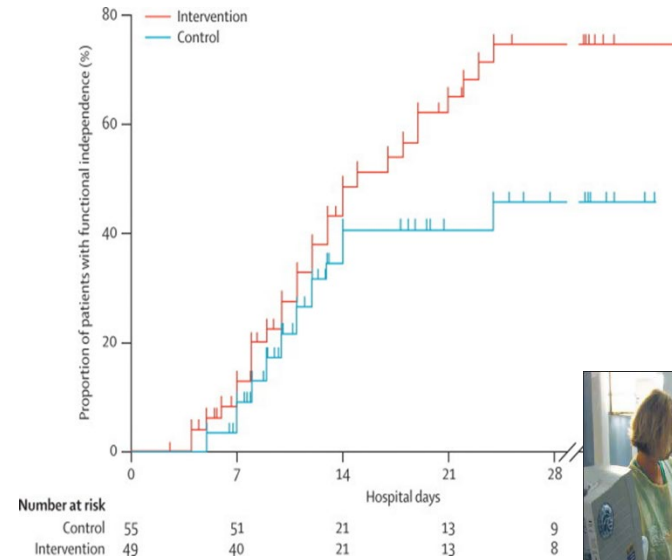


From: Effect of Exercise Intervention on Functional Decline in Very Elderly Patient Hospitalization: A Randomized Clinical Trial

JAMA Intern Med. 2019;179(1):28-36. doi:10.1001/jamaintemmed.2018.4869



Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial



[Schweickert WD, et al. Lancet 2009;373:1874-1882](#)



Age Friendly Health Systems



Nursing Homes

- Prevention of Unnecessary Hospitalisations
- Rapid Geriatric Assessment
- Exercise Programs
- Circle of Friends
- Cognitive Stimulation Therapy
- Meaningful Activities
- Excursions
- Alzheimer Villages



Hospital

- Acute Care for Elderly
- Delirium Intensive Care Unit
- Physical Exercise Programs
- Help Program : Daily visitor and mobilisation programs
- Rapid Geriatric Assessment

Emergency Department

- Rapid Geriatric Assessment
- Delirium Assessment
- Focused aged referral program

Health Professional Practice

- Annual Medicare Wellness Visit
- Advance directives
- Fall prevention
- Cognitive Stimulation Therapy
- Exercise Programs
- Rapid Geriatric Assessment

Community

- Home Visits
- Rapid Geriatric Assessment
- Transport
- Education
- Age Friendly Banking
- Age Safe Walk Space
- Communal Areas for Seniors
- Telehealth



Saint Louis University Rapid Geriatric Assessment*



*There is no copyright on these screening tools and they may be incorporated into the Electronic Health Record without permission and at no cost.

The Simple “FRAIL” Questionnaire Screening

Tool

(3 or greater = frailty; 1 or 2 = prefrail)

- Fatigue: Are you fatigued?
 - Resistance: Cannot walk up one flight of stairs?
 - Aerobic: Cannot walk one block?
 - Illnesses: Do you have more than 5 illnesses?
 - Loss of weight: Have you lost more than 5% of your weight
- in the last 6 months?

From Morley JE, Vellas B, Abellan van Kan G, et al. J Am Med Dir Assoc 2013;14:392-397.

Table I: SARC-F Screen for Sarcopenia

Component	Question	Scoring
<u>S</u> trength	How much difficulty do you have in lifting and carrying 10 pounds?	None = 0 Some = 1 A lot or unable = 2
<u>A</u> ssistance in walking	How much difficulty do you have walking across a room?	None = 0 Some = 1 A lot, use aids, or unable = 2
<u>R</u> ise from a chair	How much difficulty do you have transferring from a chair or bed?	None = 0 Some = 1 A lot or unable without help = 2
<u>C</u> limb stairs	How much difficulty do you have climbing a flight of ten stairs?	None = 0 Some = 1 A lot or unable = 2
<u>F</u> alls	How many times have you fallen in the last year?	None = 0 1-3 falls 4 or more falls = 2

From Malmstrom TK, Morley JE. J Frailty and Aging 2013;2:55-6.

SNAQ (Simplified Nutritional Assessment Questionnaire)

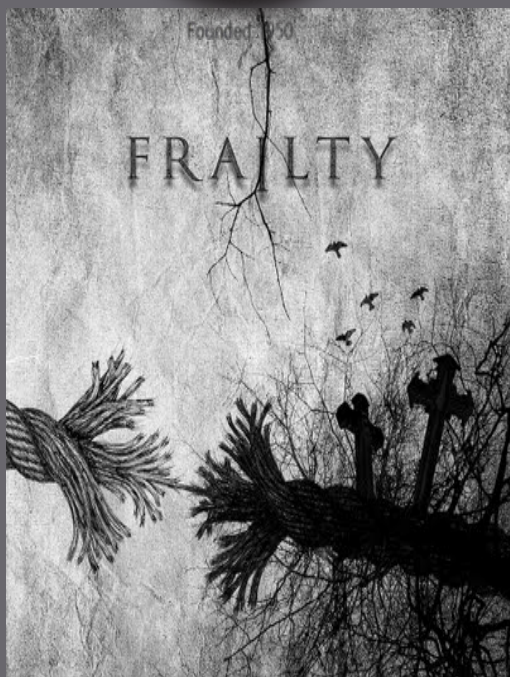
- | | |
|--|---|
| <p>My appetite is</p> <ul style="list-style-type: none"> a. very poor b. poor c. average d. good e. very good | <p>Food tastes</p> <ul style="list-style-type: none"> a. very bad b. bad c. average d. good e. very good |
| <p>When I eat</p> <ul style="list-style-type: none"> a. I feel full after eating a day only a few mouthfuls b. I feel full after eating about a third of a meal c. I feel full after eating meals a day over half a meal d. I feel full after eating most of the meal e. I hardly ever feel full | <p>Normally I eat</p> <ul style="list-style-type: none"> a. less than one meal b. one meal a day c. two meals a day d. three meals a day e. more than three |

From Wilson et al. Am J Clin Nutr 2005;82:1074-81.

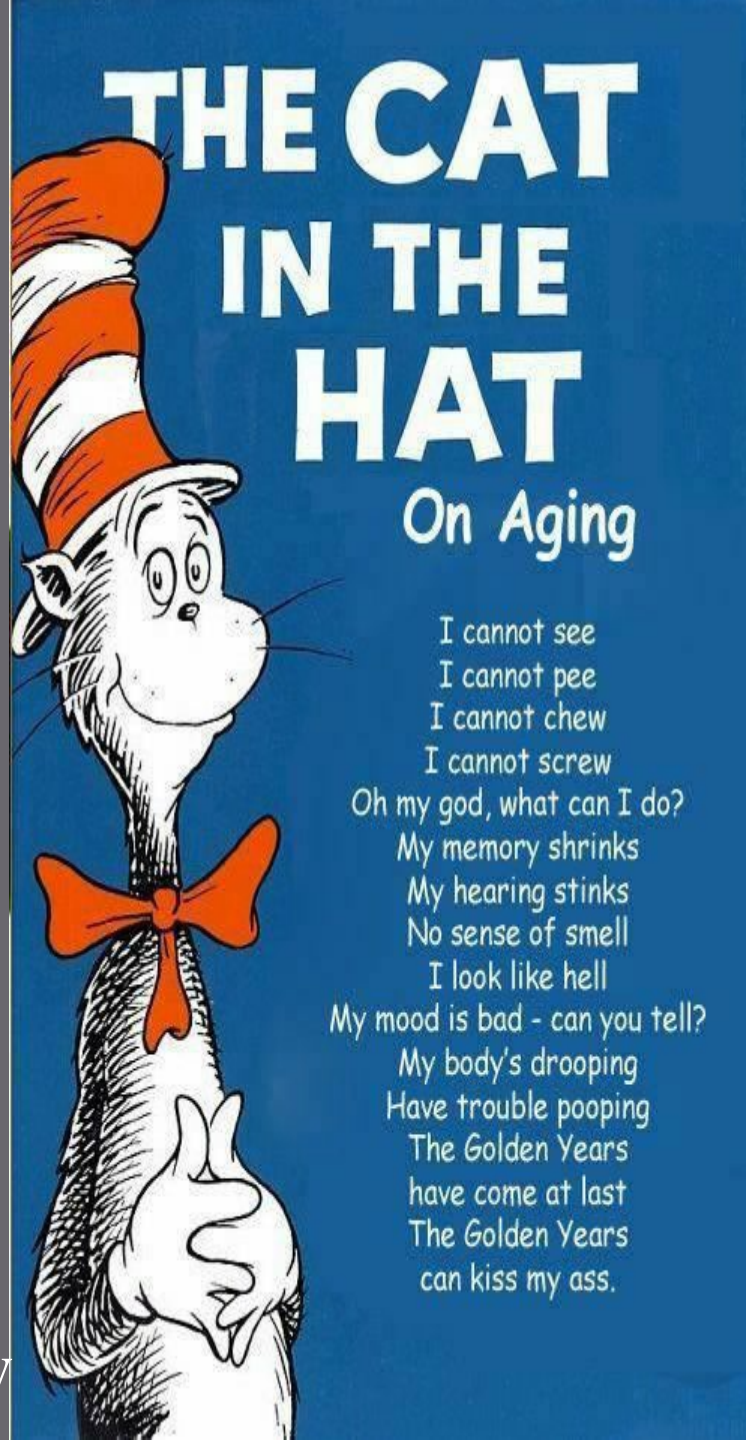
Rapid Cognitive Screen (RCS)

1. **Please remember these five objects. I will ask you what they are later.** [Read each object to patient using approx. 1 second intervals.]
Apple Pen Tie House Car
2. [Give patient pencil and the blank sheet with clock face.] **This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.** [2 pts/hr markers ok; 2 pts/time correct]
3. **What were the five objects I asked you to remember?** [1 pt/ea]
4. **I'm going to tell you a story. Please listen carefully because afterwards, I'm going to ask you about it.**
Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.
What state did she live in? [1 pt]

From Malmstrom TK, Voss VB, Cruz-Oliver DM et al. J Nutr Health Aging 2015;19:741-744.



**An International
Consensus
and
Assessment for Frailty**

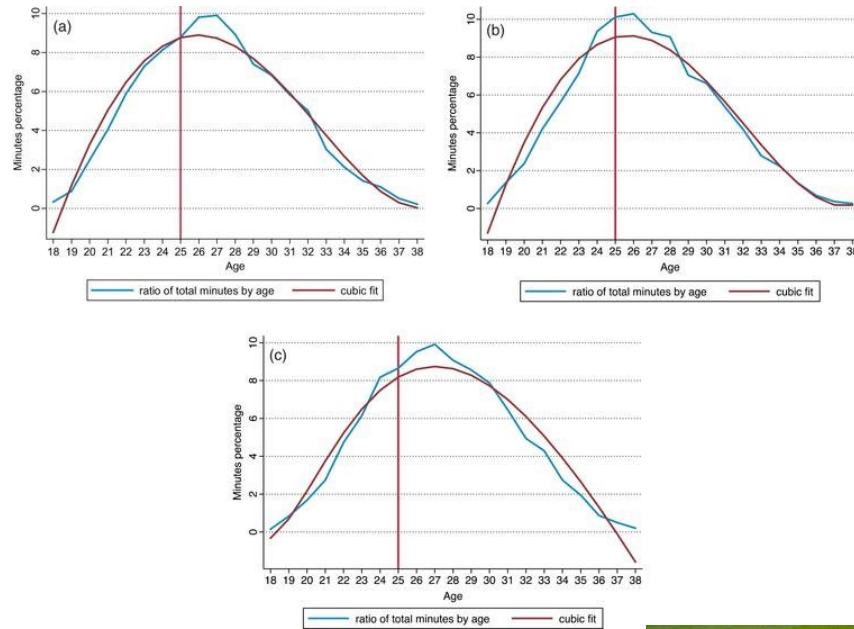


THE CAT IN THE HAT

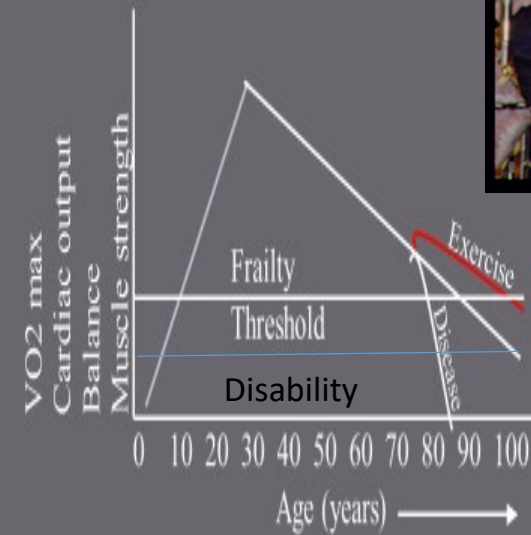
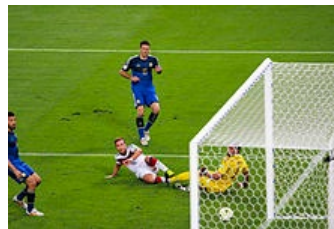
On Aging

I cannot see
I cannot pee
I cannot chew
I cannot screw
Oh my god, what can I do?
My memory shrinks
My hearing stinks
No sense of smell
I look like hell
My mood is bad - can you tell?
My body's drooping
Have trouble pooping
The Golden Years
have come at last
The Golden Years
can kiss my ass.

Age at which footballers peak



The analysis in this paper employs data from the four major European top flight leagues – **the Bundesliga (Germany), Premier League (England), Serie A (Italy) and La Liga (Spain)**. We use data from the last five seasons, 2010/11 through 2014/15.



FRAILTY DEFINITIONS

“Occurs when under stressful conditions the person has diminished ability to carry out important practiced social activities of daily living. It needs to be distinguished from disability”



Renoir,
1915
Blonde a la





FRAIL (IANA)

Fatigue

Resistance (Climb 1 flight stairs)

Aerobic (Walk one block)

Illnesses (more than 5 illnesses)

Loss of weight(>5% in 6 months)

>35 VALIDATIONS

Australia(6)

Hong Kong(2)

St Louis(2)

Chicago

China

Chicago

Louisville

Baltimore

Europe (2)

Turkey

Korea

Taiwan

Mexico(2)

Singapore

Brazil

Thailand

1 or 2
PreFRAIL
3 or more
FRAIL



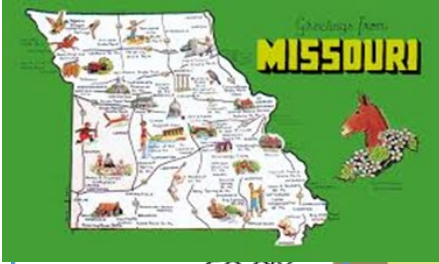
9-year OR of ADL deficit or Mortality in persons not lacking ADLs

ADLs

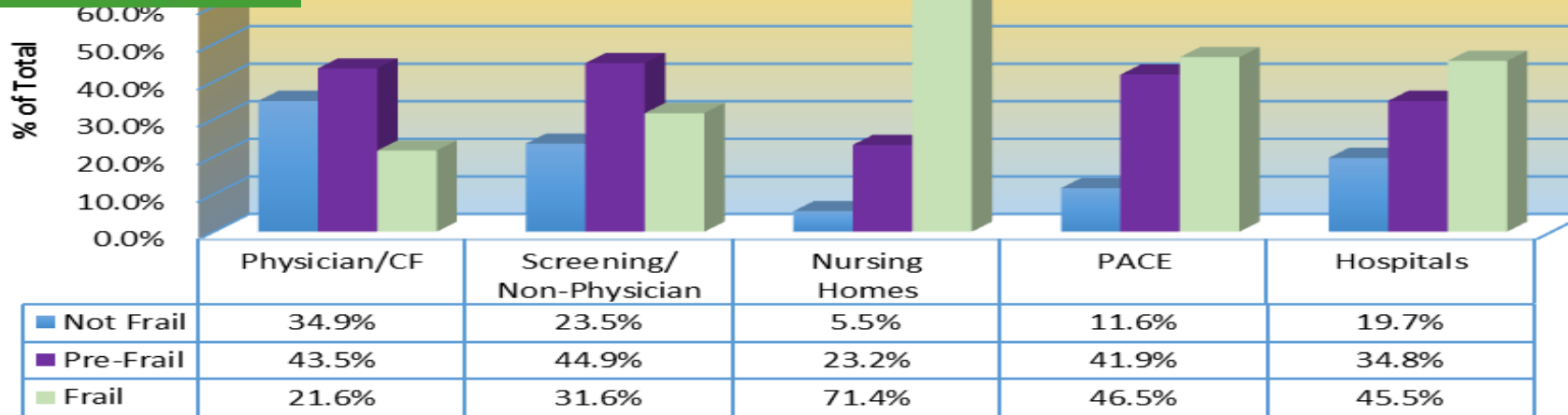
MORTALITY

	PreFrail	Frail	p	PreFrail	Frail	p
FRAIL	2.74	20.76	.001	1.58	3.99	.001
SOF	3.09	3.48	.001	1.47	1.40	NS
CHS	2.40	6.47	.001	1.35	2.42	.01
Rockwood	2.36	5.65	.001	2.50	2.66	.00

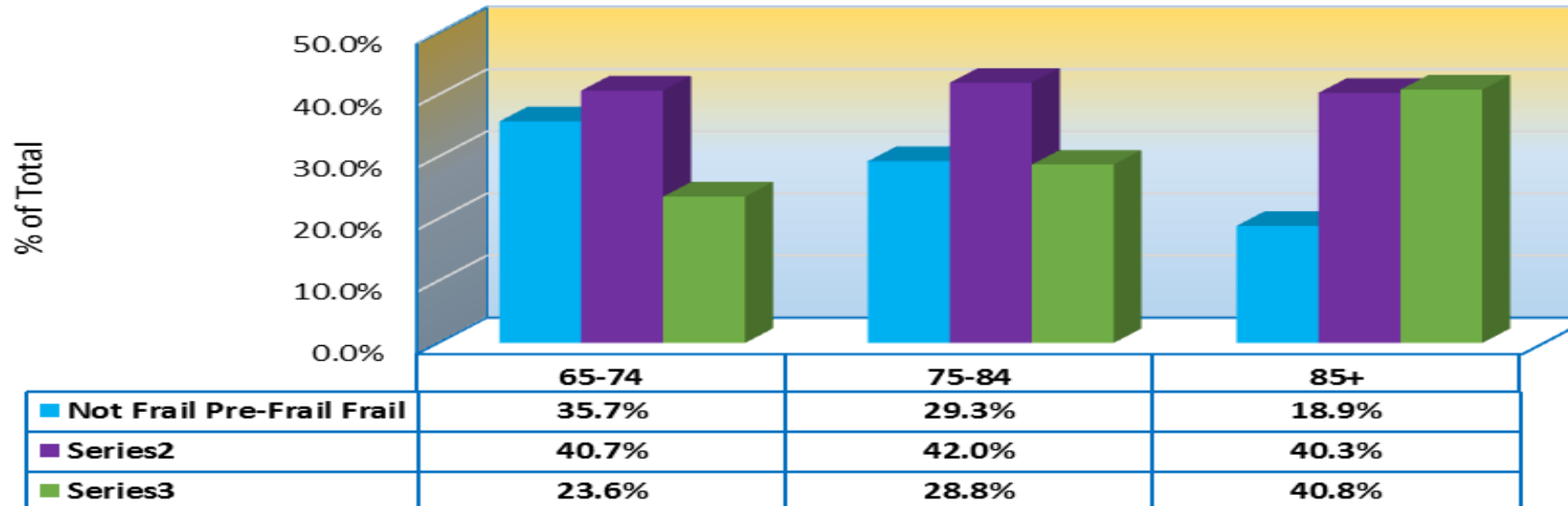




FRAIL Scale Results 2015-2019



FRAIL Results by Age Group





Progranulin a biomarker for FRAILITY?

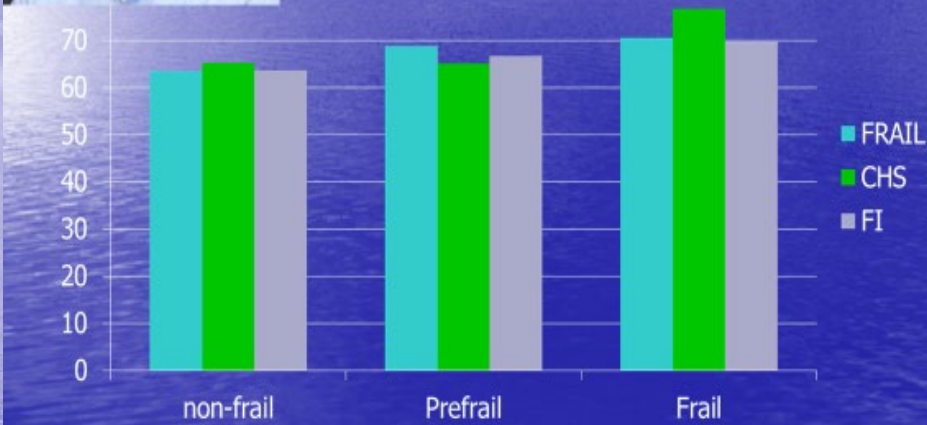


Table 4. Baseline serum progranulin and cytokine levels.

Measure	N	Unstandardized Beta (SE)	P ^a
Progranulin			
CRP	353	0.210 (0.128)	0.101
CRP (log ₁₀)	353	0.636 (1.182)	0.726
sIL-2R	353	0.020 (0.002)	<0.001
sIL-2R (log ₁₀)	353	25.365 (3.643)	<0.001
sIL-6R	352	0.175 (0.038)	<0.001
sIL-6R (log ₁₀)	352	18.797 (5.054)	<0.001
TNFR1	351	1.621 (0.197)	<0.001
TNFR1 (log ₁₀)	351	32.622 (4.152)	<0.001
TNFR2	351	0.737 (0.078)	<0.001
TNFR2 (log ₁₀)	351	37.803 (3.791)	<0.001

^a Ordinary Least Squares Regression adjusted for age.

<https://doi.org/10.1371/journal.pone.0238877.t004>

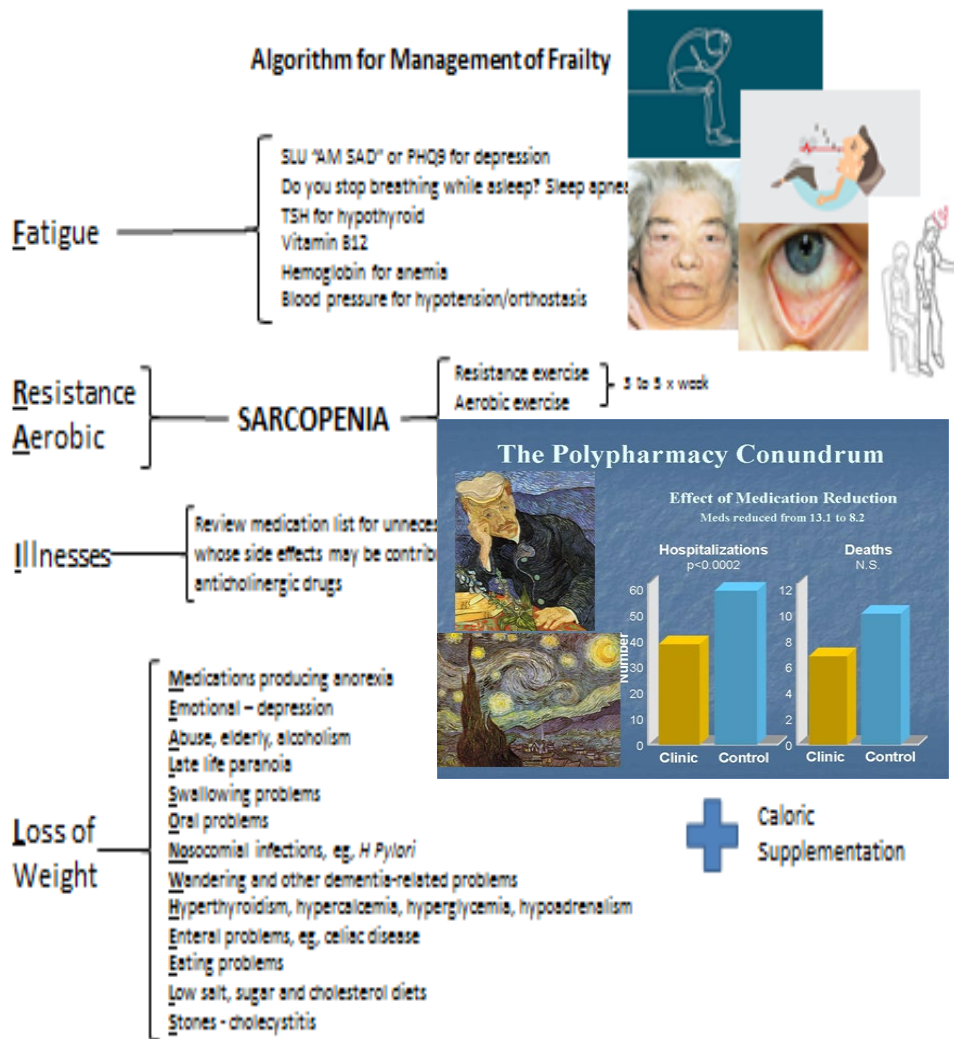
Nguyen AD, Malmstrom TK, Niehoff ML, Aziz A, Miller DK, et al. (2020) Serum progranulin levels are associated with frailty in middle-aged individuals. PLOS ONE 15(9): e0238877. <https://doi.org/10.1371/journal.pone.0238877>
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0238877>

PLOS ONE





Feeling frail? Take the test



- Aged Care Minister Ken Wyatt said the study, titled *Frailty in Community Dwelling Older People/Using Frailty Screening as the Canary in the Coal Mine*, outlines a life-changing opportunity, describing frailty detection as a "game-changer"
- Importantly, the study recommends that with the right support at the right time, **frailty can be halted or even reversed by safe, simple, inexpensive, practical interventions,**"



Depression

- Use PHQ 9
- Scores greater than 18 require treatment
- Always ask about LONELINESS
- Consider “Circle of Friends” or “Friendly Villages”



Sleep Apnea

STOP

S	So you snore loudly (louder enough to be heard through closed doors or louder than talking)?	Yes	No
T	Do you often feel tired , fatigued or sleepy during the daytime?	Yes	No
O	Has anyone observed you stop breathing or choking or gasping during your sleep?	Yes	No
P	Do you have or are you being treated for high blood pressure ?	Yes	No

Bang

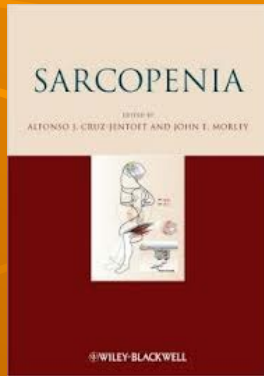
B	BMI more than 35?	Yes	No
a	Age – over 50 years old?	Yes	No
n	Neck circumference – is it greater than 17" if you are a male or 16" if you are a female?	Yes	No
g	Gender – are you a male?	Yes	No

Epworth Sleepiness Scale (ESS)

Situation	Chance of dozing (0–3)			
	0	1	2	3
Sitting and reading	0	1	2	3
Watching television	0	1	2	3
Sitting inactive in a public place—for example, a theater or meeting	0	1	2	3
As a passenger in a car for an hour without a break	0	1	2	3
Lying down to rest in the afternoon	0	1	2	3
Sitting and talking to someone	0	1	2	3
Sitting quietly after lunch (when you've had no alcohol)	0	1	2	3
In a car, while stopped in traffic	0	1	2	3
Total Score				

0 = would never doze 1 = slight chance of dozing 2 = moderate chance of dozing 3 = high chance of dozing

Johns MW. *Sleep*. 1991;14:540.



Sarcopenia : Recognized as an Independent Condition by International Classification of Disease, tenth Revision Clinical Modification Code



ICD-10-CM

M62.84



Sarcopenia is poor function associated with muscle loss



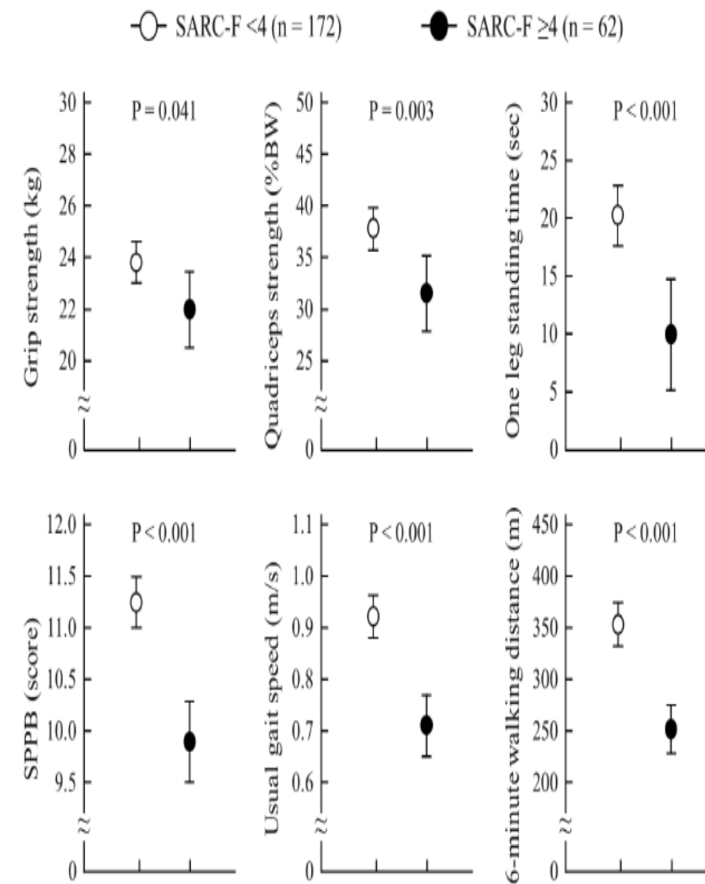
Olga Kotelko	1.5m
Women's high school	6.9m
Women's world	7.5m



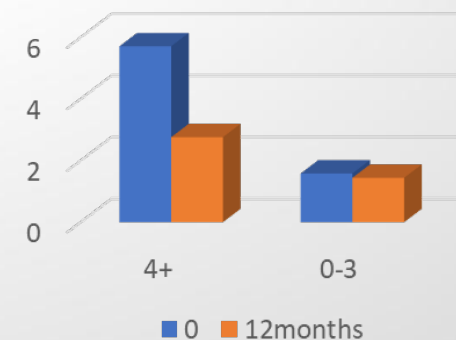
Table 1. SARC-F screen for sarcopenia

Component	Question	Scoring
Strength	How much difficulty do you have in lifting and carrying 10 pounds?	None=0
		Some=1
		A lot or unable=2
Assistance in walking	How much difficulty do you have walking across a room?	None=0
		Some=1
		A lot, use aids, or unable=2
Rise from a chair	How much difficulty do you have transferring from a chair or bed?	None=0
		Some=1
		A lot or unable without help=2
Climb stairs	How much difficulty do you have climbing a flight of 10 stairs?	None=0
		Some=1
		A lot or unable=2
Falls	How many times have you fallen in the last year?	None=0
		1-3 falls=1
		4 or more falls=2

Participants with a total score higher than 4 were classified as having sarcopenia

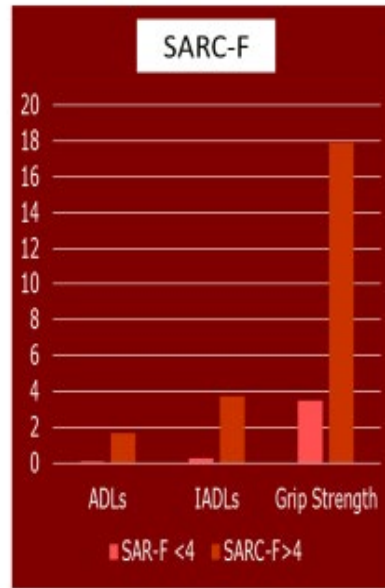


**SARC-F
JAGS in press 2020**

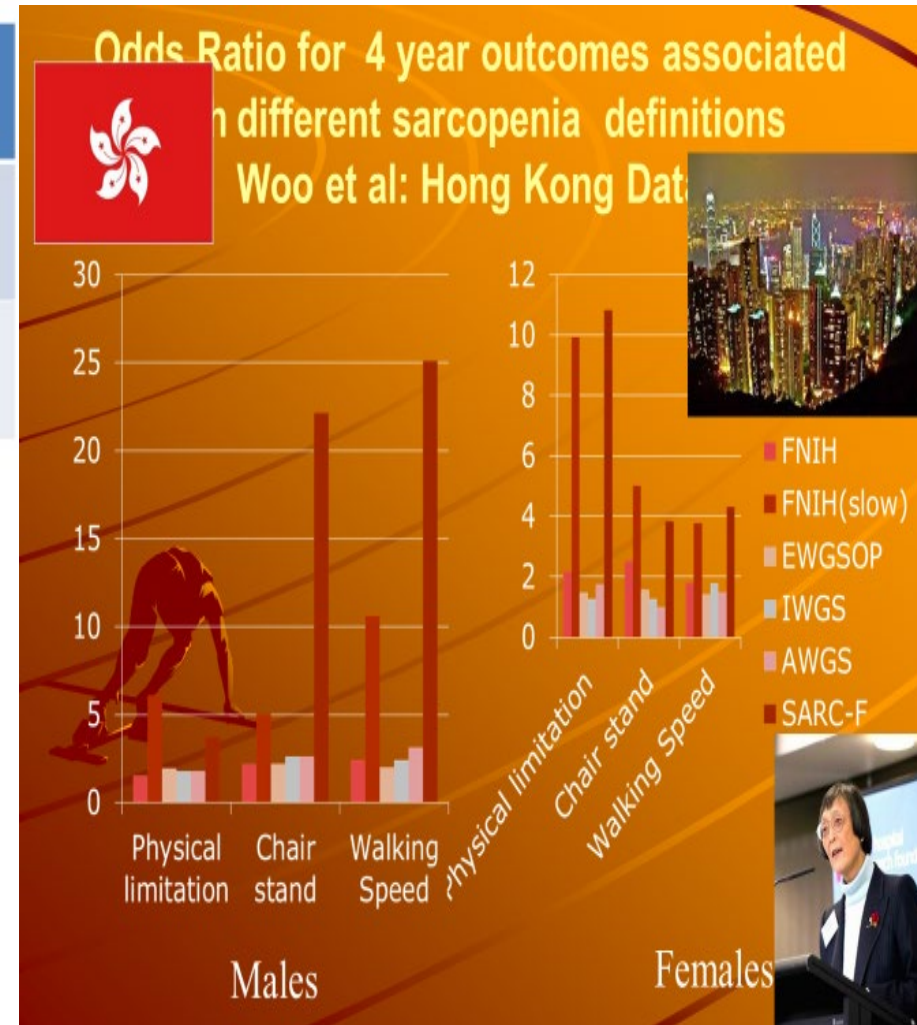




SARC-F in Baltimore Longitudinal Study 60+ years



	Odds Ratio	P-value
Gait Speed <0.8 m/s	9.41(2.51-35.27)	0.001
Mortality	3.07(1.60-5.73)	0.001

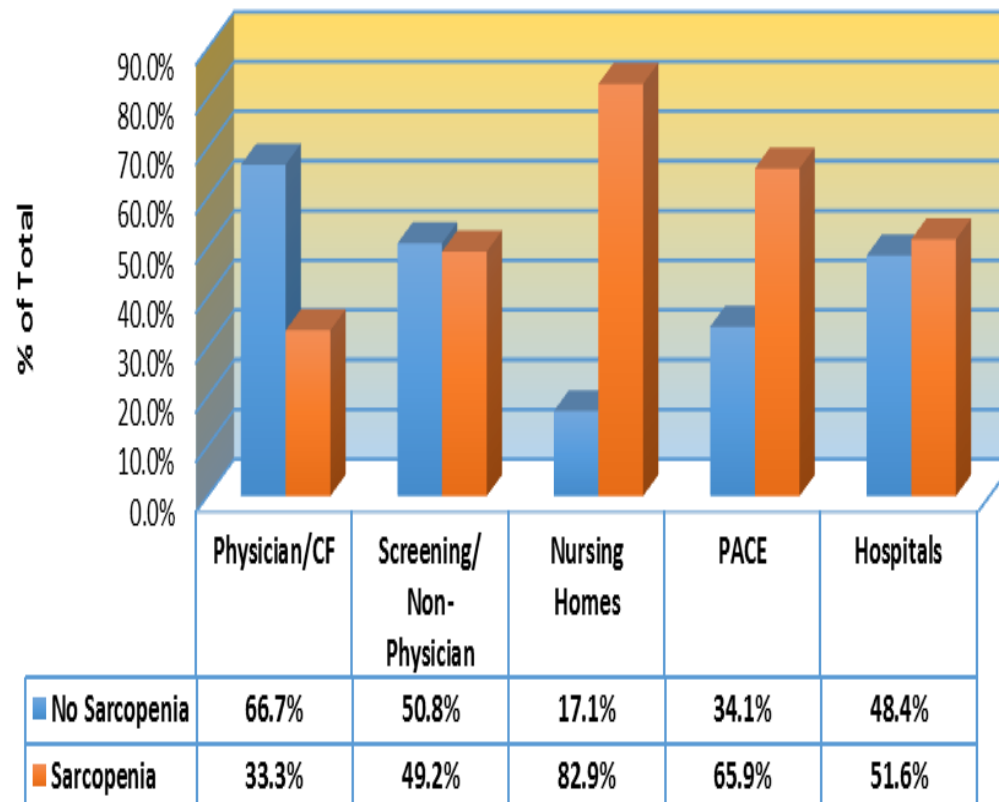




SARC-F



**SARC-F Scale Results
2015-2019**



- **European Working Group on Sarcopenia in Older People**
- **Society of Sarcopenia, Cachexia and**

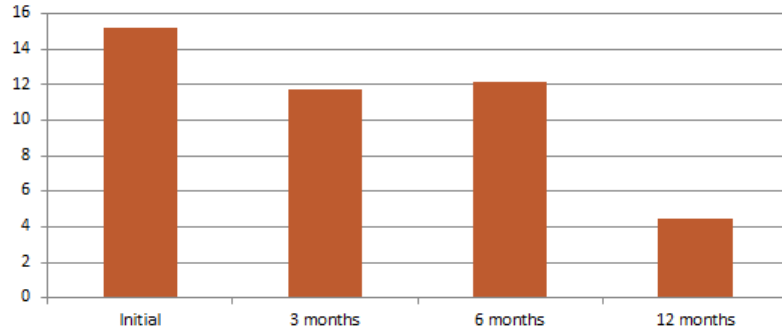




Perry County Exercise Program



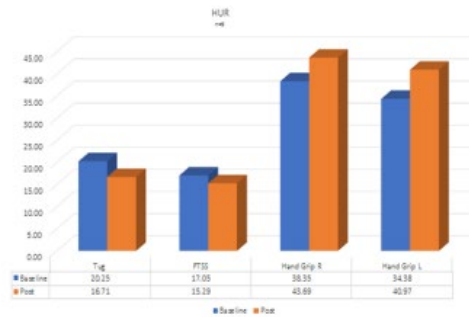
Five Times Sit to Stand (n=97)



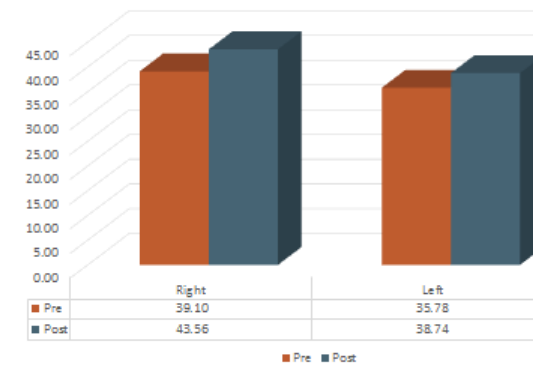
Timed Up and Go (TUG) Test (n=97)



Helsinki University Research Exercise Machine



Hand Grip Strengths Results



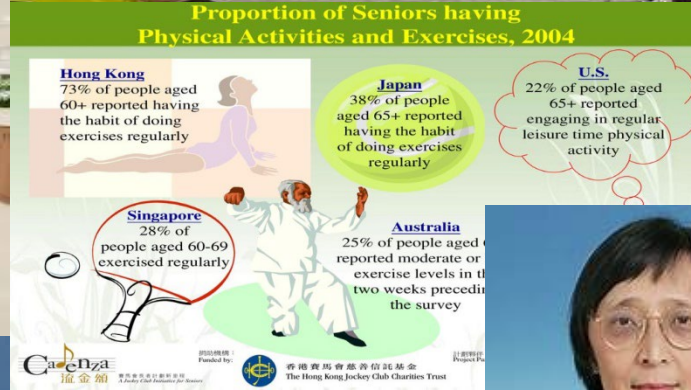
Hand Grip Strength Test

The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed.





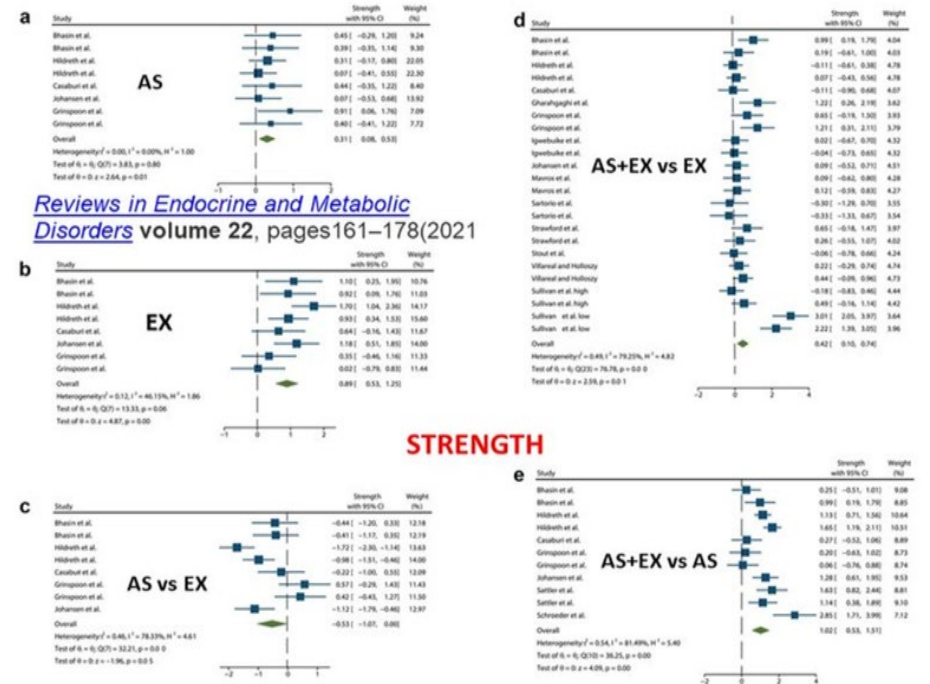
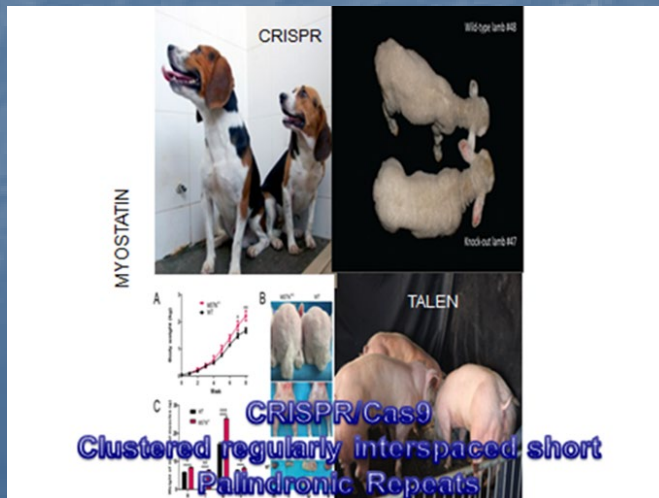
Primary Prevention Happy : Singapore



Cadenza
 香港賽馬會慈善信託基金
 The Hong Kong Jockey Club Charities Trust

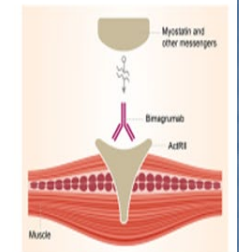
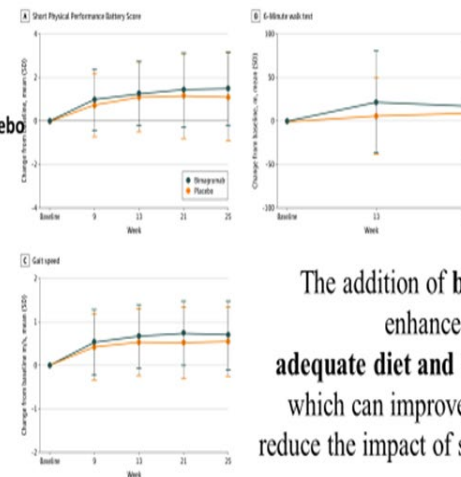
Drugs and Sarcopenia

- Anabolic steroids
- GH and Ghrelin analogues
- Myostatin and activin antagonists
- Vitamin D
- Beta-adrenergic blockers
- Metformin
- Mas receptor activator
- Stem cells



Bimagrumab vs Optimized Standard of Care for Treatment of Sarcopenia in Community-Dwelling Older Adults
A Randomized Clinical Trial
JAMA Netw Open. 2020

Bimagrumab 700 mg or placebo monthly for 6 months with adequate diet and home-based exercise



The addition of bimagrumab does not enhance the effect of adequate diet and habitual light exercise, which can improve physical function and reduce the impact of sarcopenia in older adults.



Robotic Inventions around the world

Robotic Exoskeleton at Football World Cup - 2014

12 JUNE 2014

Juliano Pinto, 29-year-old male paraplegic, kicked the inaugural soccer ball wearing a robotic exoskeleton

Cap on head picked up signals from brain as he mentally visualized kicking the ball

BRAZIL

Inauguration of the Football World Cup


Corinthians Arena, Sao Paulo

Signals transmitted to the exoskeleton's legs, which are moved by hydraulic forces

Developed by Walk Again Project, headed by Dr. Miguel Nicolelis of Duke University and a team of 150 researchers

© MapsOfWorld 2014

PROPHETIC LETTER



Benjamin Franklin, in a 1780 letter to scientist Joseph Priestly said of the future:

“all diseases may by sure means be prevented or cured, not excepting that of old age, and our lives lengthened at pleasure even beyond the (current) standard...”

SENOLYTICS

Anorexia Independently Predicts Mortality

Hazard Ratio 2.9 (1.1-7.4)

Cornali et al *JAGS* 53 354, 2005



S.N.A.Q.

1) My appetite is

1. Very poor
2. Poor
3. Average
4. Good
5. Very good

2) When I eat, I feel full after

1. Eating only a few mouthfuls
2. Eating about a third of a plateful
3. Eating over half a plateful
4. Eating most of the food
5. Hardly ever

3) Food tastes

1. Very bad
2. Bad
3. Average
4. Good
5. Very good

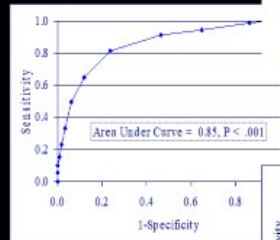
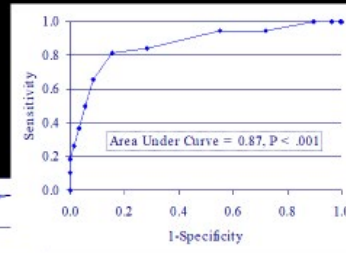
4) Normally I eat

1. Less than one full meal a day
2. One meal a day
3. Two meals a day
4. Three meals a day
5. More than three meals a day, including snacks

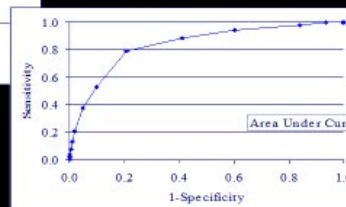
< 15 predicts significant weight loss within 6 months

Mini-CNAQ: 5% weight loss

old



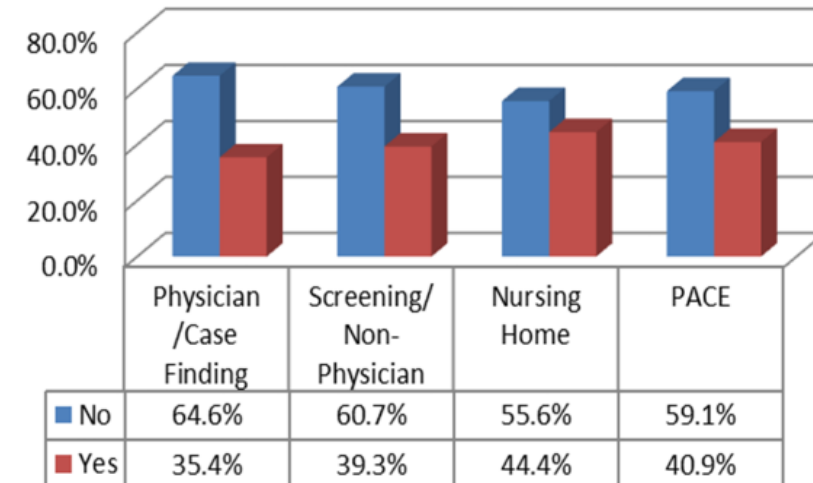
young



Total



SNAQ Results 7/1/2015 - 6/30/2017



MEALS-ON-WHEELS

Mnemonic for reversible causes of weight loss

- Medications
- Emotional (depression)
- Anorexia tardive, alcoholism
- Late life paranoia
- Swallowing problems
- Oral problems
- No money (poverty)
- Wandering and other dementia behaviors
- Hyperthyroidism, hypoadrenalism, hyperparathyroidism
- Enteric problems
- Eating problems
- Stones, social problems



***"Memory is a passion
no less powerful or pervasive
than love."***

***Elie Wiesel
"All Rivers Run to the Sea"***



Saint Louis University
Rapid Geriatric Assessment*

*There is no copyright on these screening tools and they may be incorporated into the Electronic Health Record without permission and at no cost.



The Simple "FRAIL" Questionnaire Screening Tool
(3 or greater = frailty; 1 or 2 = prefrail)

- Exhaustion: Are you fatigued?
- Resistance: Cannot walk up one flight of stairs?
- Aerobic: Cannot walk one block?
- Illnesses: Do you have more than 5 illnesses?
- Loss of weight: Have you lost more than 5% of your weight in the last 6 months?

From Morley JE, Vellas B, Abellan van Kan G, et al. J Am Med Assoc 2013;314:30-38.

SNAQ (Simplified Nutritional Assessment Questionnaire)

- My appetite is
- a. very poor
 - b. poor
 - c. average
 - d. good
 - e. very good

When I eat

- a. I feel full after eating a day
- b. I feel full after eating only a few mouthfuls
- c. I feel full after eating about a third of a meal
- d. I feel full after eating meals a day
- e. I feel full after eating over half a meal
- f. I feel full after eating most of the meal
- g. I hardly ever feel full

From Vitousek et al. Am J Clin Nutr 2005;82:1074-81.

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Falls	How many times have you fallen in the last year?	None = 0 1-3 falls = 1 4 or more = 2

From Malhotra TK, Morley JE. J Frailty and Aging 2013;2:58-6.

Rapid Cognitive Screen (RCS)

1. Please remember these five objects. I will ask you what they are later. [Read each object to patient using approx. 1 second intervals.]

- Apple Pen Tie House Car
2. [Give patient pencil and the blank sheet with clock face.] This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock. [2 pts/hr markers ok; 2 pts/time correct]

3. What were the five objects I asked you to remember? [1 pt ea]

4. I'm going to tell you a story. Please listen carefully because afterwards, I'm going to ask you about it.

Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.

What state did she live in? [1 pt]

From Malhotra TK, Voss VB, Cruz-Oliver DM, et al. J Nutr Health Aging 2015;19:741-744.



Rapid Cognitive Screen (RCS) by age group.

RCS Results by Age Group

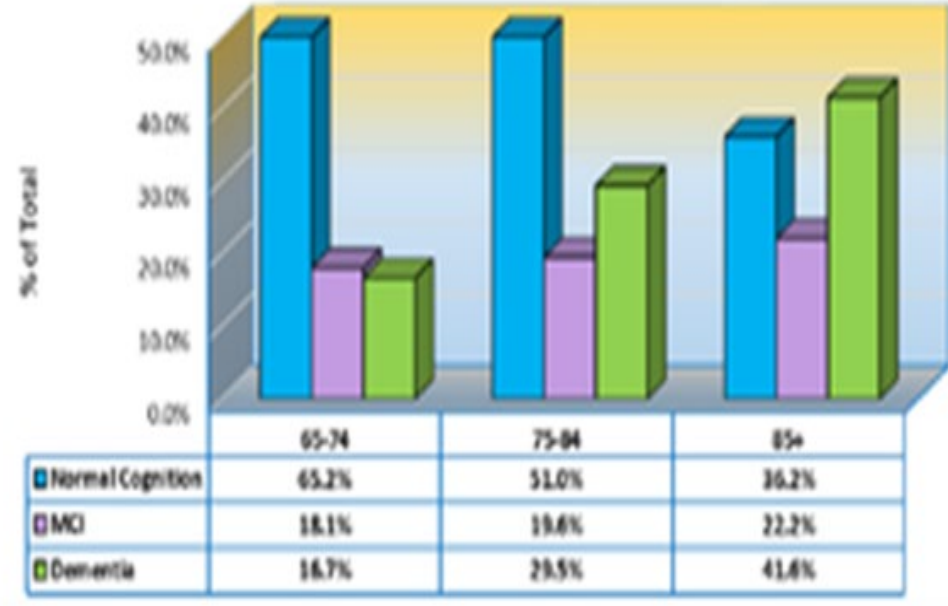


Figure 1: Rapid Cognitive Screen (RCS), Page 1

Name _____ Age _____

In the patient area? _____ Level of education _____

1. Please remember these five objects. I will ask you what they are later. [Read each object to patient using approximately 1 second intervals.]

Apple Pen Tie House Car

Please repeat the objects for me. [If patient does not repeat all 5 objects correctly, repeat until all objects are recalled correctly or up to a maximum of 2 times.]

2. [Give patient pencil and the blank sheet with clock face.] This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.

____ [2 points] Hour markers okay
____ [2 points] Time correct

[When scoring, give full credit for all 11 numbers. If the patient puts only ticks on the circle, prompt them once to put numbers next to those ticks the full circle. Do not repeat the time. When scoring the correct time, make sure that the minute hand points at the 10 and the hour hand points at the 11.]

3. What were the five objects I asked you to remember?

____ [1 point] Apple
____ [1 point] Pen
____ [1 point] Tie
____ [1 point] House
____ [1 point] Car

4. I'm going to tell you a story. Please listen carefully because afterwards, I'm going to ask you about it.

Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.

What state did she live in?

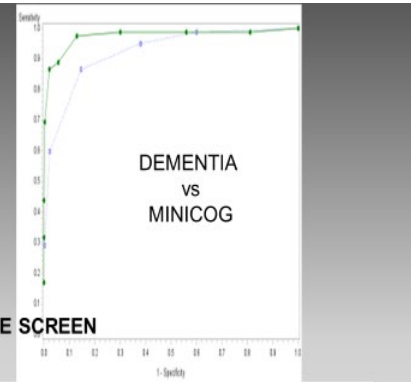
____ [1 point] Illinois

[Do not repeat the story but do make sure the patient is paying attention to the fact that you read it to them. Do not prompt or give hints. The answer of "Chicago" is the one that lives up to you could but you may prompt them once by repeating the question when "Chicago" is given as the answer.]

Total Score [0-10 points]

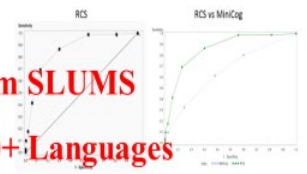
SCORING
0-10 Normal
6-7 Mild Cognitive Impairment
0-5 Dementia

CLINICIAN'S SIGNATURE _____ DATE _____ TIME _____



RAPID COGNITIVE SCREEN

Rapid Cognitive Screen and MCI
(5 words, clock, story with country)



Derived from SLUMS
Available in 40+ Languages

Sanford AM, Morley JE, Berg-Weger M, Lundy J, Little MO, et al. (2020) High prevalence of geriatric syndromes in older adults. PLOS ONE 15(6): e0233857. <https://doi.org/10.1371/journal.pone.0233857>
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0233857>

PLOS ONE

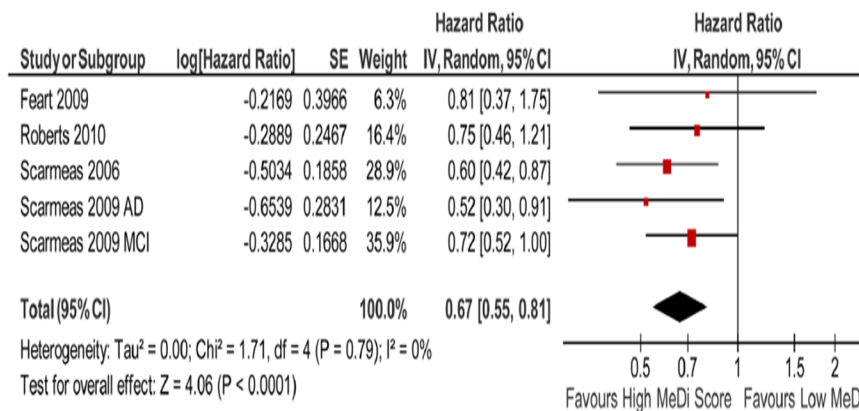
Mediterranean Diet associated with reduced risk of Alzheimer's Disease

Journal of Alzheimer's Disease xx (20xx) x-xx
DOI 10.3233/JAD-130830
IOS Press

Association of Mediterranean Diet with Mild Cognitive Impairment and Alzheimer's Disease: A Systematic Review and Meta-Analysis

Balwinder Singh^{a,d}, Ajay K. Parsaik^a, Michelle M. Mielke^b, Patricia J. Erwin^c, David S. Knopman^a, Ronald C. Petersen^{a,b} and Rosebud O. Roberts^{a,b,*}

^aDepartment of Neurology, Department of Health Sciences Research, Mayo Clinic, Rochester, MN, USA
^bDivision of Epidemiology, Department of Health Sciences Research, Mayo Clinic, Rochester, MN, USA
^cMayo Medical Libraries, Mayo Clinic, Rochester, MN, USA
^dDepartment of Clinical Neuroscience, University of North Dakota School of Medicine and Health Sciences, Fargo, ND, USA



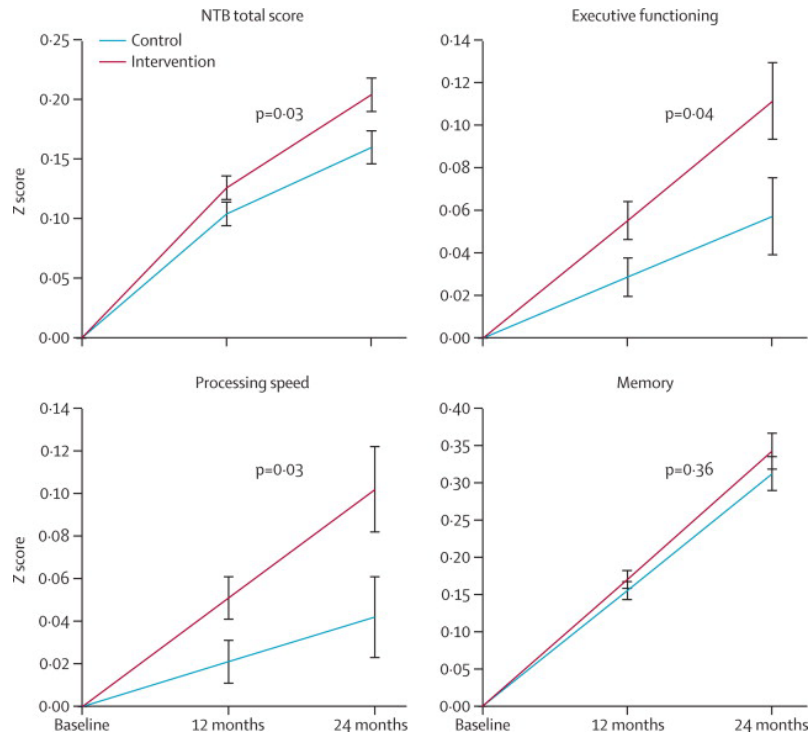
RESEARCH PAPER

Mediterranean diet improves cognition: the PREDIMED-NAVARRA randomised trial

Elena H Martinez-Lapiscina,^{1,2} Pedro Clavero,³ Estefania Toledo,^{1,4} Ramon Estruch,^{4,5} Jordi Salas-Salvado,^{4,6} Beatriz San Julián,¹ Ana Sanchez-Tainta,¹ Emilio Ros,^{4,7} Cinta Valls-Pedret,^{4,7} Miquel À Martinez-Gonzalez¹

Table 4 Multivariable-adjusted means after a 6½-year follow-up and differences versus control (95% CIs) in each intervention group

	MedDiet+EVOO (n=224)		MedDiet+Nuts (n=166)		Control (low-fat diet) (n=132)
	Mean (95% CI)	p Value (vs control)	Mean (95% CI)	p Value (vs control)	Mean (95% CI)
MMSE	27.73 (27.27 to 28.19)		27.68 (27.20 to 28.16)		27.11 (26.61 to 27.61)
Adjusted diff. versus control (95% CI)	+0.62 (+0.18 to +1.05)	0.005	+0.57 (+0.11 to +1.03)	0.015	0 (reference)
CDT	5.31 (4.98–5.64)		5.13 (4.78–5.47)		4.80 (4.44–5.16)
Adjusted diff. versus control (95% CI)	+0.51 (+0.20 to +0.82)	0.001	+0.33 (+0.003 to +0.67)	0.048	0 (reference)



FINGER STUDY

Aged 60-77 years recruited from previous national surveys.

A 2 year multidomain intervention (diet, exercise, cognitive training, vascular risk monitoring), or a control group (general health advice).

1260 to the intervention group (n=631) or control group (n=629).



A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial

Tiia Ngandu , Jenni Lehtisalo , Alina Solomon , Esko Levälähti , Satu Ahtiluoto , Riitta Antikainen , Lars Bäckma...



Making a difference



An evidence-based group programme to offer cognitive stimulation therapy (CST) to people with dementia

The manual for group leaders

Aimee Spector, Lene Thorgrimsen
Bob Woods, Martin Orrell

Published by **The Journal for Dementia Care**

Making a difference



An evidence-based group programme to offer maintenance cognitive stimulation therapy (CST) to people with dementia

The manual for group leaders

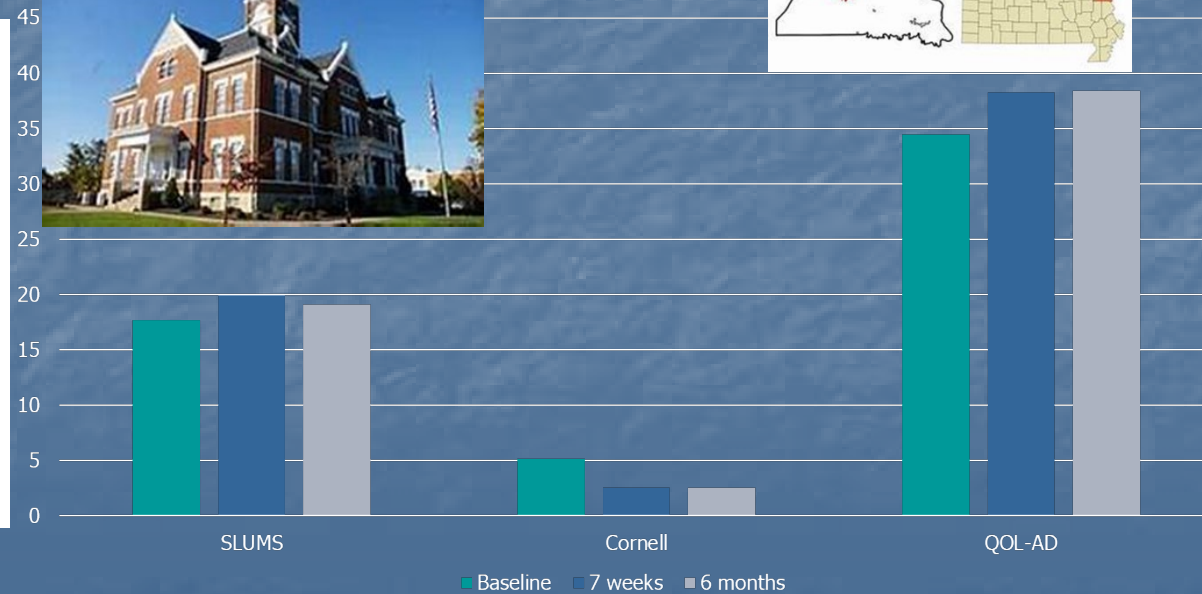
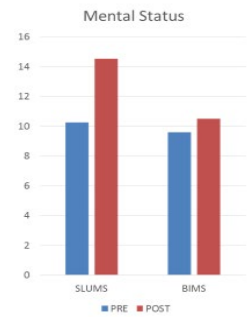
VOLUME TWO

Elsa Aguila, Aimee Spector, Amy Streeter
Juanita Hoo, Bob Woods, Martin Orrell

Published by **The Journal of Dementia Care**



Cognitive Stimulation Therapy : NHC Nursing Home



JAMDA 2017 Apr 1;18(4):355-360.

Developing Evidence for Football (Soccer) Reminiscence Interventions Within Long-term Care: A Co-operative Approach Applied in Scotland and Spain

[Laura Coll-Planas¹](#), [Karen Watchman²](#), [Sara Doménech³](#), [David McGillivray⁴](#), [Hugh O'Donnell⁵](#), [Debbie Tolson²](#)



Cardinals Reminiscence League





Improves  Cognition



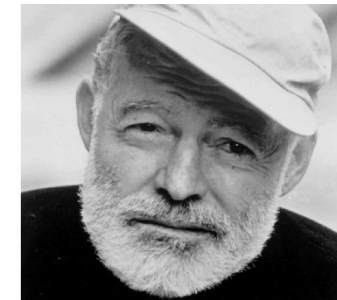


- Stress
- Depression
- Quality of Life
- Poor Sleep
- Worsening mentation
- Impaired Function
- Cardiovascular disease
- Increased hospitalization
- Increased mortality

Social Isolation “Loneliness Epidemic”



No one should be alone in old age,
but it is unavoidable



PPE needed for all visitors and Volunteers

Ekamjit S. Deol Score Cutoff

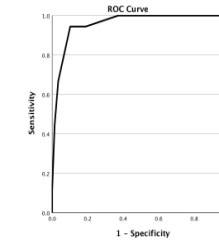
ALONE SCALE: To assess an individual's perception of being lonely, ask each of the items below using the following rating scale:

▶ Yes Sometimes No

- A** Are you **A**tttractive to others? Yes ____ Sometimes ____ No ____
L Are you **L**onely? Yes ____ Sometimes ____ No ____
O Are you **O**utgoing/friendly? Yes ____ Sometimes ____ No ____
N Do you feel you have **N**o friends? Yes ____ Sometimes ____ No ____
E Are you **E**motionally upset (sad)? Yes ____ Sometimes ____ No ____

- UCLA Score of 50 or greater corresponds to severe loneliness
- ALONE scale cutoff: 8.0

Score	Sensitivity	1 - Specificity
4.00	1.000	1.000
5.50	1.000	.649
6.50	1.000	.372
7.50	.944	.159
8.50	.944	.101
9.50	.667	.034
10.50	.444	.014
11.50	.111	.000
12.50	.056	.000
14.00	.000	.000

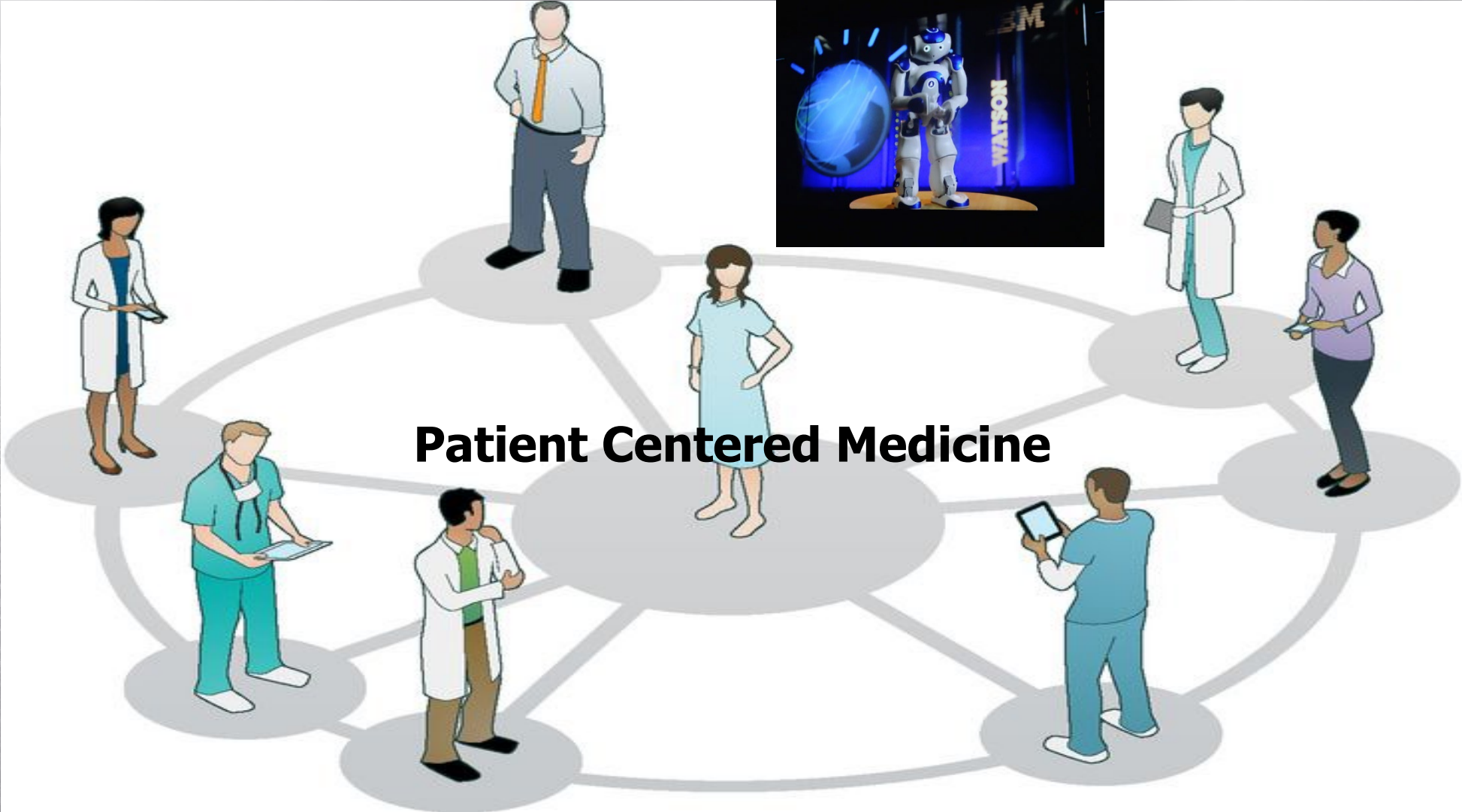


Editorial: Circle of Friends, an Encouraging Intervention for Alleviating Loneliness.

Jansson A, Pitkälä KH.

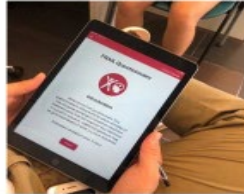
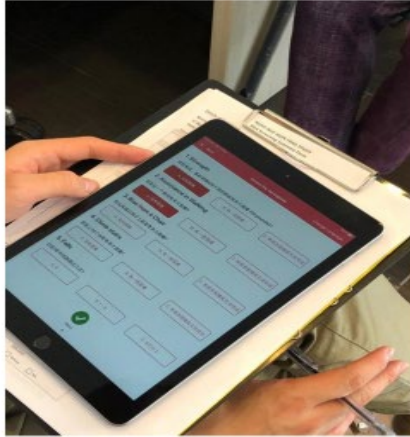
J Nutr Health Aging. 2021;25(6):714-715.



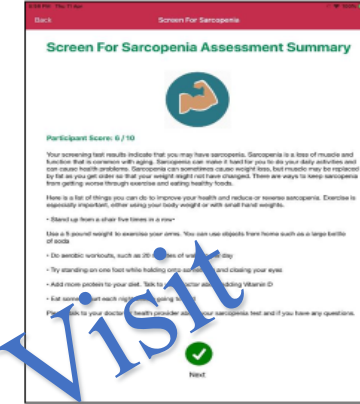
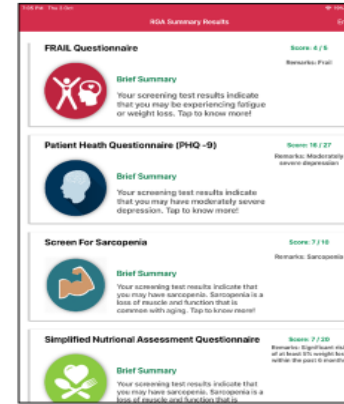


High Quality Age Friendly Health Care
Will Require Computer Assistance

SCREENING IN PRIMARY CARE



RGA APP: IMMEDIATE ADVICE AND EMPOWERMENT



Medicare Annual Wellness Visit

TELEHEALTH
With AI
THE FUTURE?



Rapid Geriatric Assessment

The Rapid Geriatric Assessment puts power back into your hands. Using this service, you may take this assessment to identify possible treatable geriatric problems.

[Learn More](#)

The Annual Wellness Exam

<p>LIFEAD</p> <p>The LIFEAD test determines your quality of life.</p> <p>START</p>	<p>ALONE</p> <p>The ALONE test examines how social you are.</p> <p>START</p>	<p>ENERGY</p> <p>The ENERGY test exams your vitality.</p> <p>START</p>	<p>AMSAD</p> <p>The AMSAD test determines if you're satisfied with your life.</p> <p>START</p>
<p>ADLS</p> <p>The ADLS & IADLS tests examine your ability to carry out the activities of daily living.</p> <p>START</p>	<p>FRAIL-NH</p> <p>The FRAIL-NH test examines your ability to maintain function on an everyday basis.</p> <p>START</p>	<p>FRAIL</p> <p>The FRAIL test will examine whether or not you have any geriatric syndromes.</p> <p>START</p>	<p>SNAQ</p> <p>The SNAQ Test assesses whether or not you have a problem with your appetite.</p> <p>START</p>
<p>RCS</p> <p>The Rapid Cognitive Screening is a test of your memory.</p> <p>START</p>	<p>SARC-F</p> <p>The SARC-F Test examines how well your muscles are functioning.</p> <p>START</p>	<p>ADAM</p> <p>The ADAM test is a test for males that evaluates levels of testosterone.</p> <p>START</p>	<p>What Matters</p> <p>The What Matters questionnaire is determine what is important to you.</p> <p>START</p>

Welcome to the Annual Wellness Visit

Using this assessment, you may identify possible treatable geriatric problems. Our surveys have been developed in a partnership with Saint Louis University and will help you identify issues before speaking with your physician. The assessment is not yet HIPAA compliant.



Patient Entry

Enter Patient ID Below:

[Continue](#)

Please schedule an appointment with your healthcare provider to discuss the findings.

High results may need further investigation

FRAIL	FRAIL-NH	SARC-F	ADLS	IADLS	AMSAD	HEARING
5/5	5/15	0/10	0/6	0/6	5/10	10/11
Suggestions					Suggestions	Suggestions

Low results may need further investigation

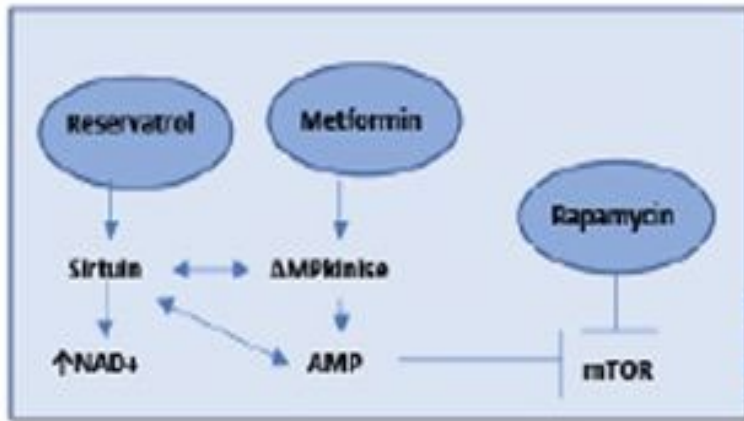
RCS	SNAQ	ALONE	EAT	ENERGY	LIFEAD
4/10	8/20	7/10	0/10	7/12	6/12
Suggestions	Suggestions	Suggestions	Suggestions	Suggestions	Suggestions

What Matters

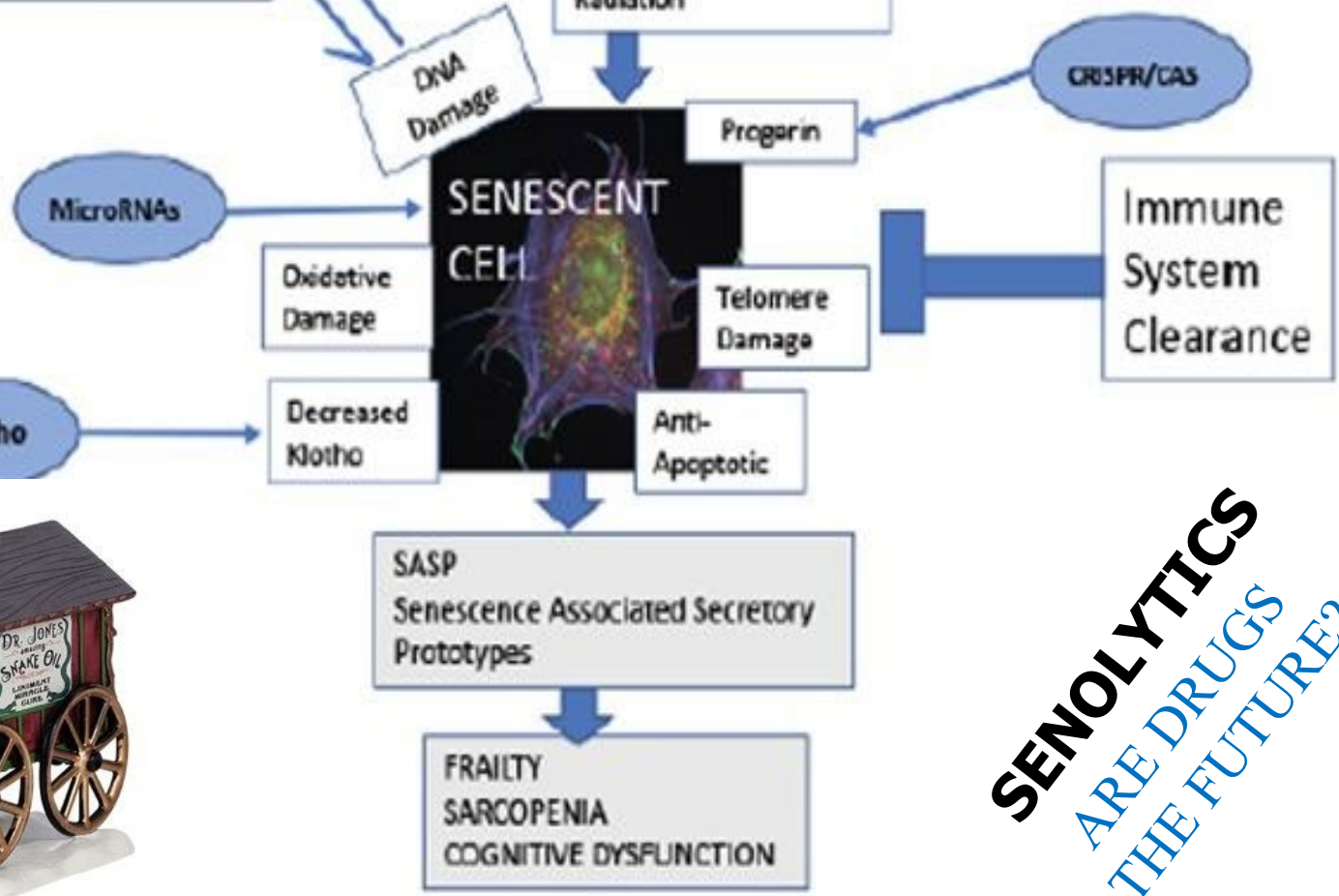
Advanced Directive:

Patient Information:

[See Patient Info](#)



- Lifestyle Factors**
- Genes
 - Infections
 - Other diseases
 - Atmospheric pollution
 - Smoking
 - Excess food
 - Undernutrition
 - Lack of exercise
 - Radiation

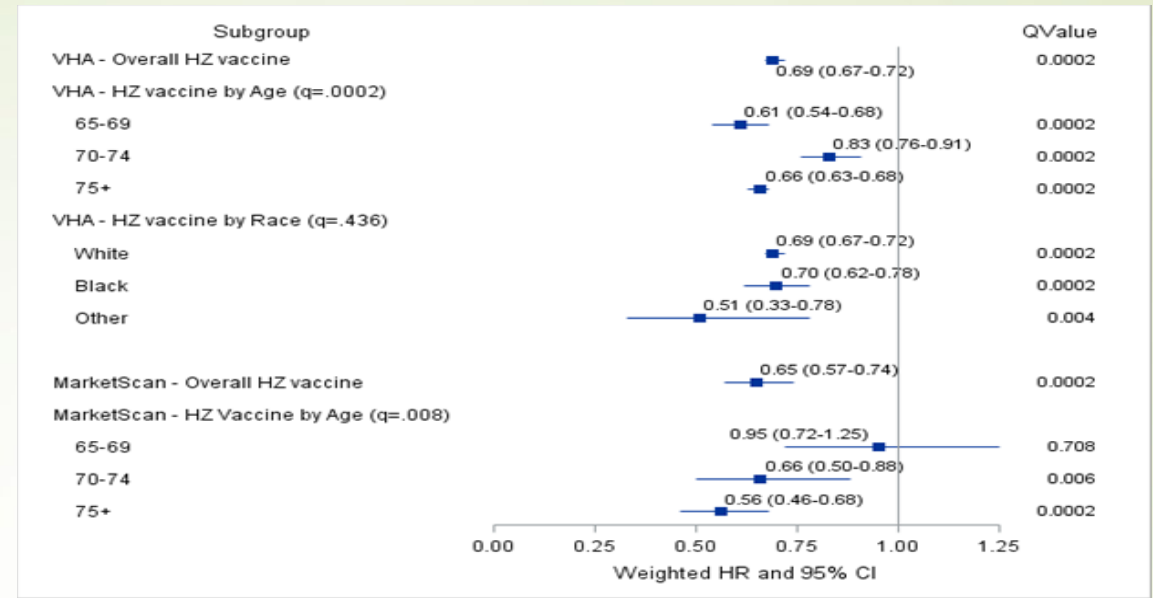


**SENOLYTICS
ARE DRUGS
THE FUTURE?**

Herpes Zoster Vaccination and Dementia



Implications of all the available evidence: HZ and Tdap vaccinations in Veterans and civilians were associated with a reduction in new onset dementia.



Tdap Vaccination and Dementia

Age group	Veterans Health Affairs Cohort		MarketScan Cohort	
	Crude	Weighted	Crude	Weighted
All ages	0.53 (0.50–0.56)	0.58 (0.54–0.63)	0.58 (0.50–0.66)	0.58 (0.48–0.70)
Age 65–69	0.64 (0.55–0.73)	0.68 (0.57–0.81)	0.80 (0.61–1.05)	0.77 (0.58–1.03)
Age 70–74	0.59 (0.49–0.71)	0.45 (0.36–0.56)	0.74 (0.54–1.02)	0.58 (0.37–0.91)
Age > 75	0.71 (0.65–0.77)	0.56 (0.51–0.61)	0.73 (0.59–0.91)	0.53 (0.40–0.70)

Aging Friendly World :
Must Be Patient Centered
Geriatrics is a TEAM sport

BOLD
NEW



EVERY OLDER PERSON IS DIFFERENT





Thank You Dr. Morley!



EVMS

Eastern Virginia Medical School

**Community Focus.
World Impact.**