



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO

# Il concetto di capacità intrinseca e la medicina geriatrica

Matteo Cesari, MD, PhD



67° CONGRESSO NAZIONALE  
SIGG

LA LONGEVITÀ DECLINATA AL FEMMINILE

Roma, 30 novembre - 3 dicembre 2022  
UNIVERSITÀ CATTOLICA DEL SACRO CUORE



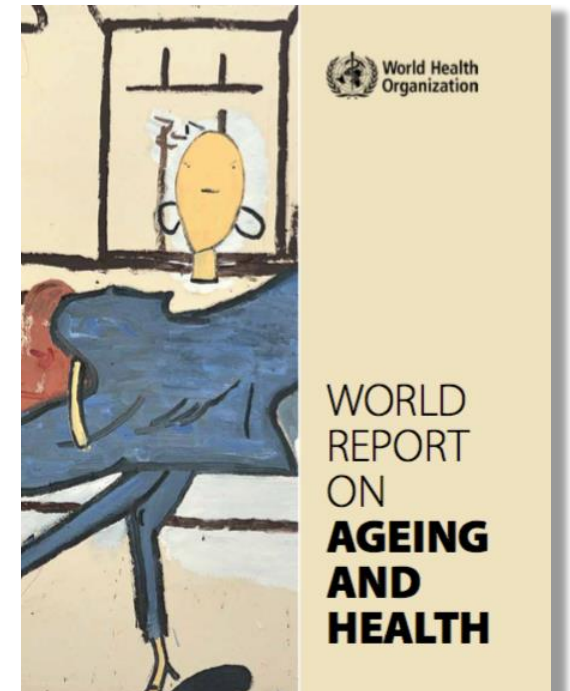
SOCIETÀ ITALIANA  
DI GERONTOLOGIA  
E GERIATRIA

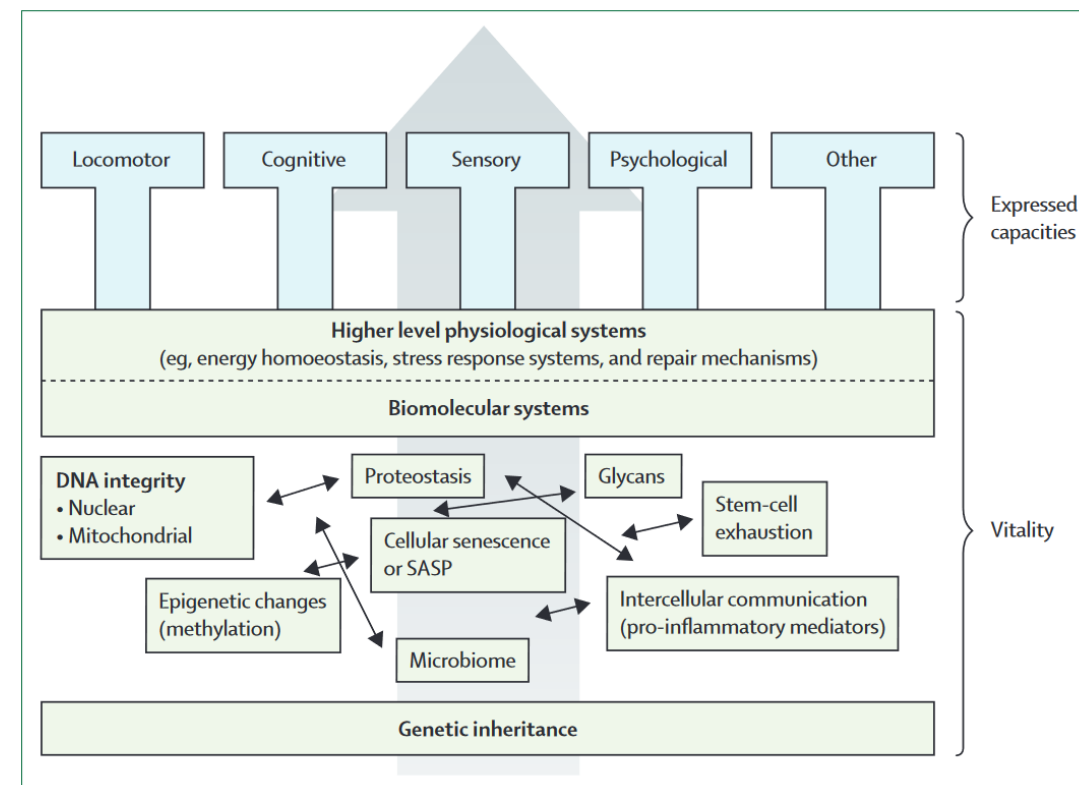
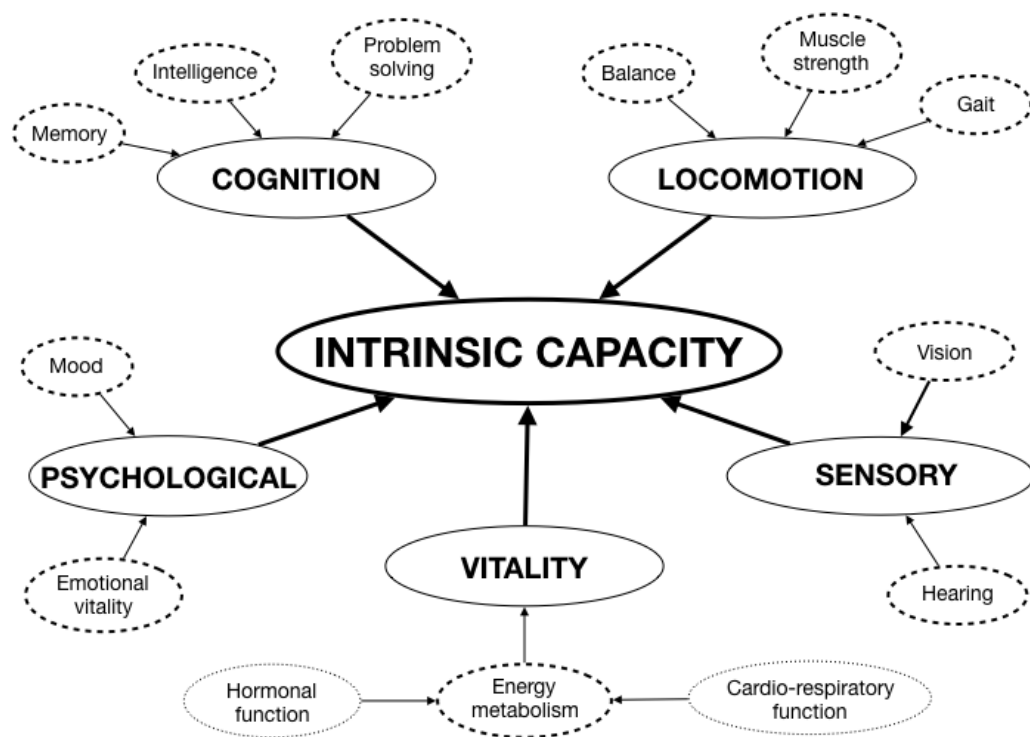
**Healthy Ageing:** the process of developing and maintaining the functional ability that enables well-being in older age.

**Functional ability:** the health-related attributes that enable people to be and to do what they have reason to value. It is made up of the ***intrinsic capacity*** of the individual, relevant ***environmental characteristics*** and the interactions between the individual and these characteristics.

**Intrinsic capacity:** the composite of all the physical and mental capacities of an individual.

**Environments:** all the factors in the extrinsic world that form the context of an individual's life.

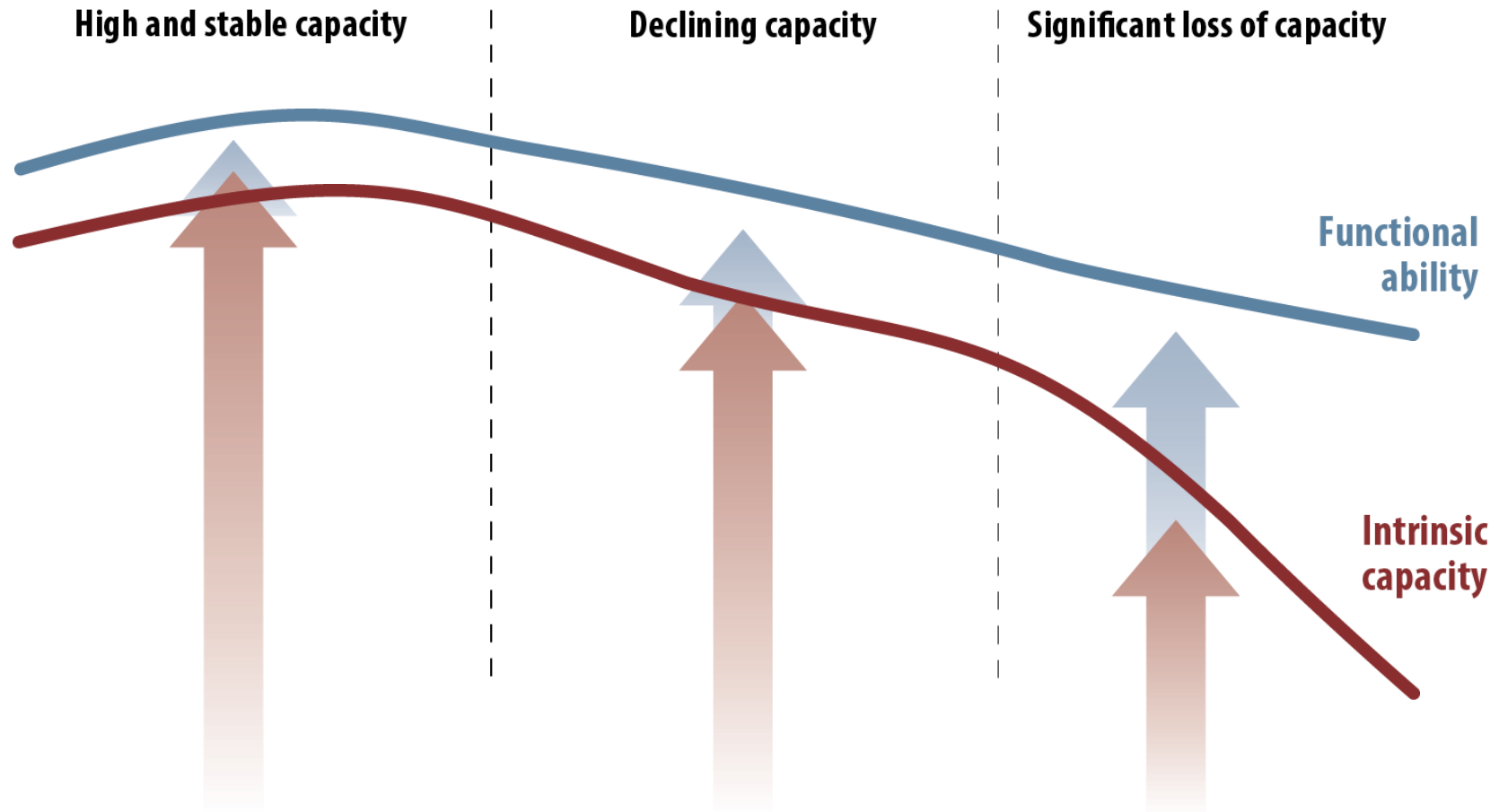




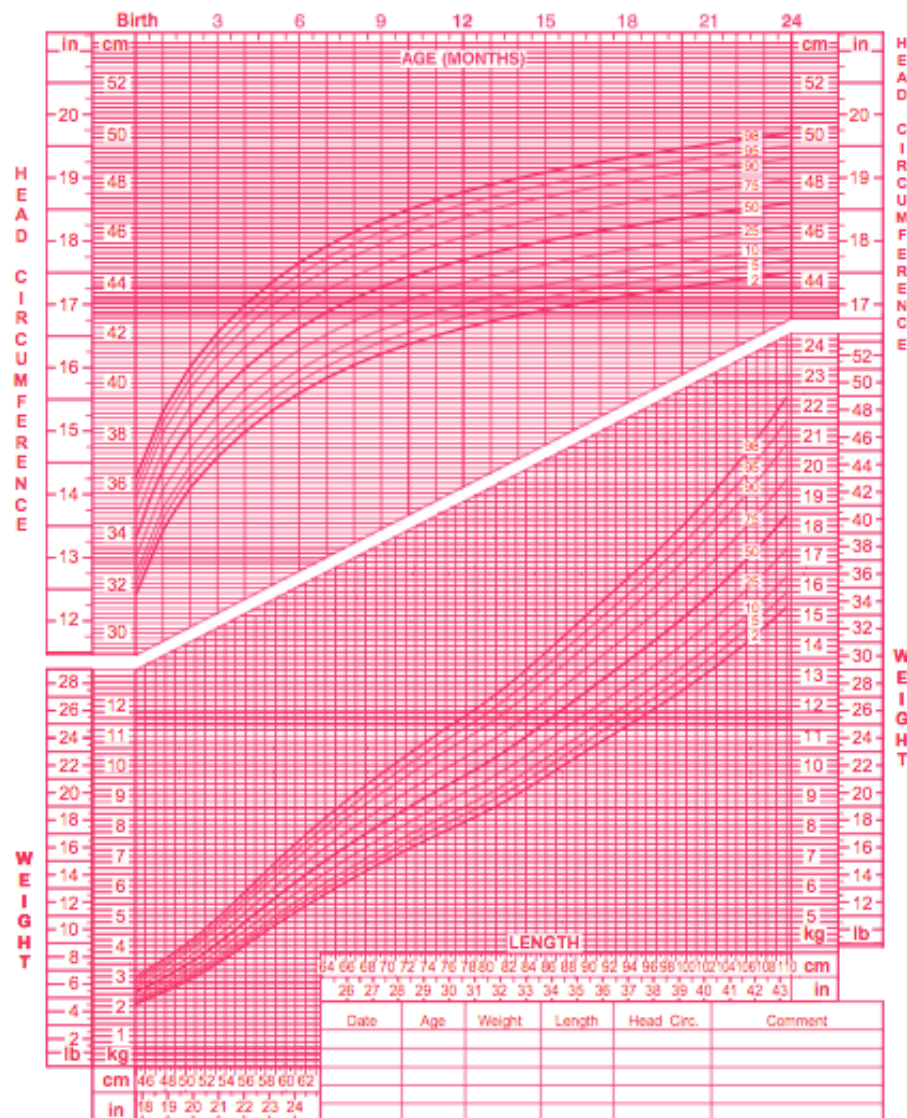
Cesari M, et al.  
*J Gerontol A Biol Sci Med Sci* 2018;73(12):1653–60

Bautmans I, et al.  
*Lancet Healthy Longevity* 2022;3(11):e789–96

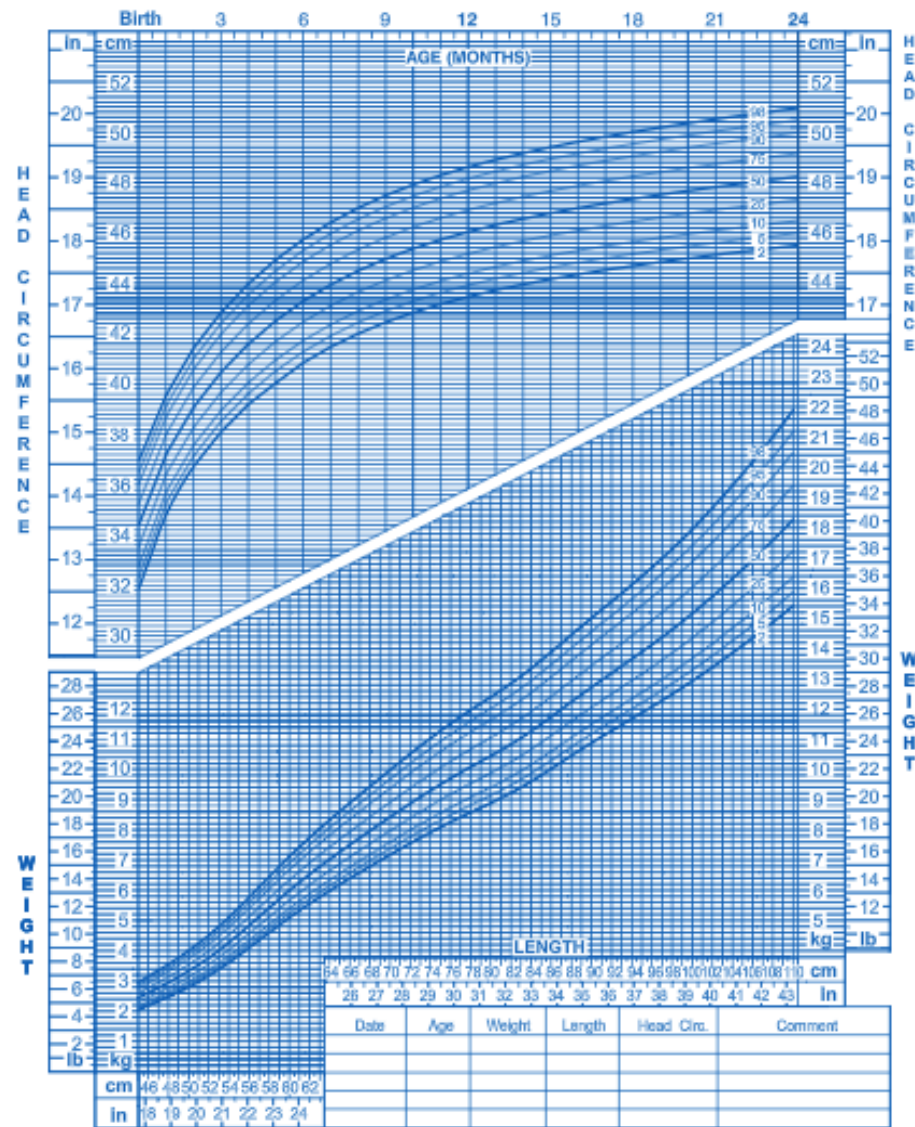
# Public Health Framework for *Healthy Ageing*





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**SOURCE:** WHO Child Growth Standards (<http://www.who.int/childgrowth/en>)

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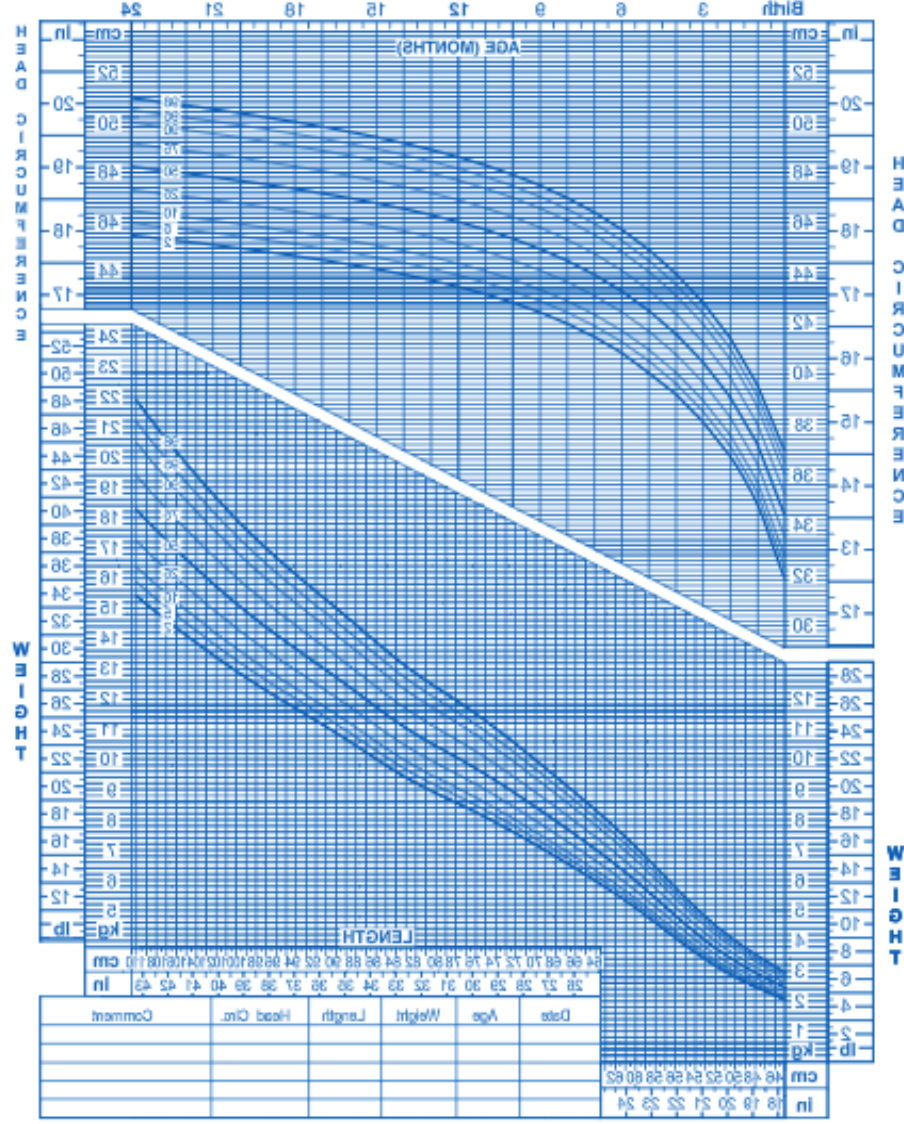
Published by the Centers for Disease Control and Prevention, November 1, 2008  
SOURCE: WHO Child Growth Standards (<http://www.who.int/childgrowth/en>)





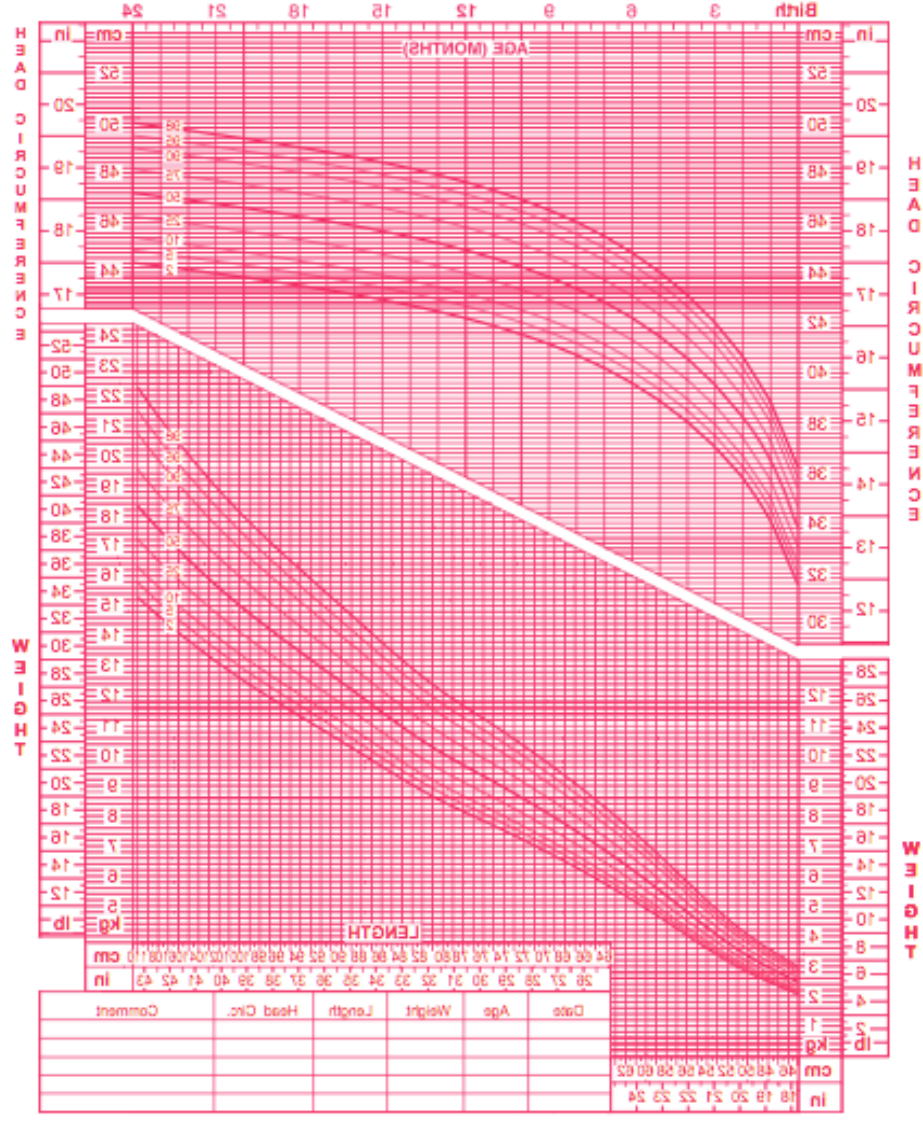
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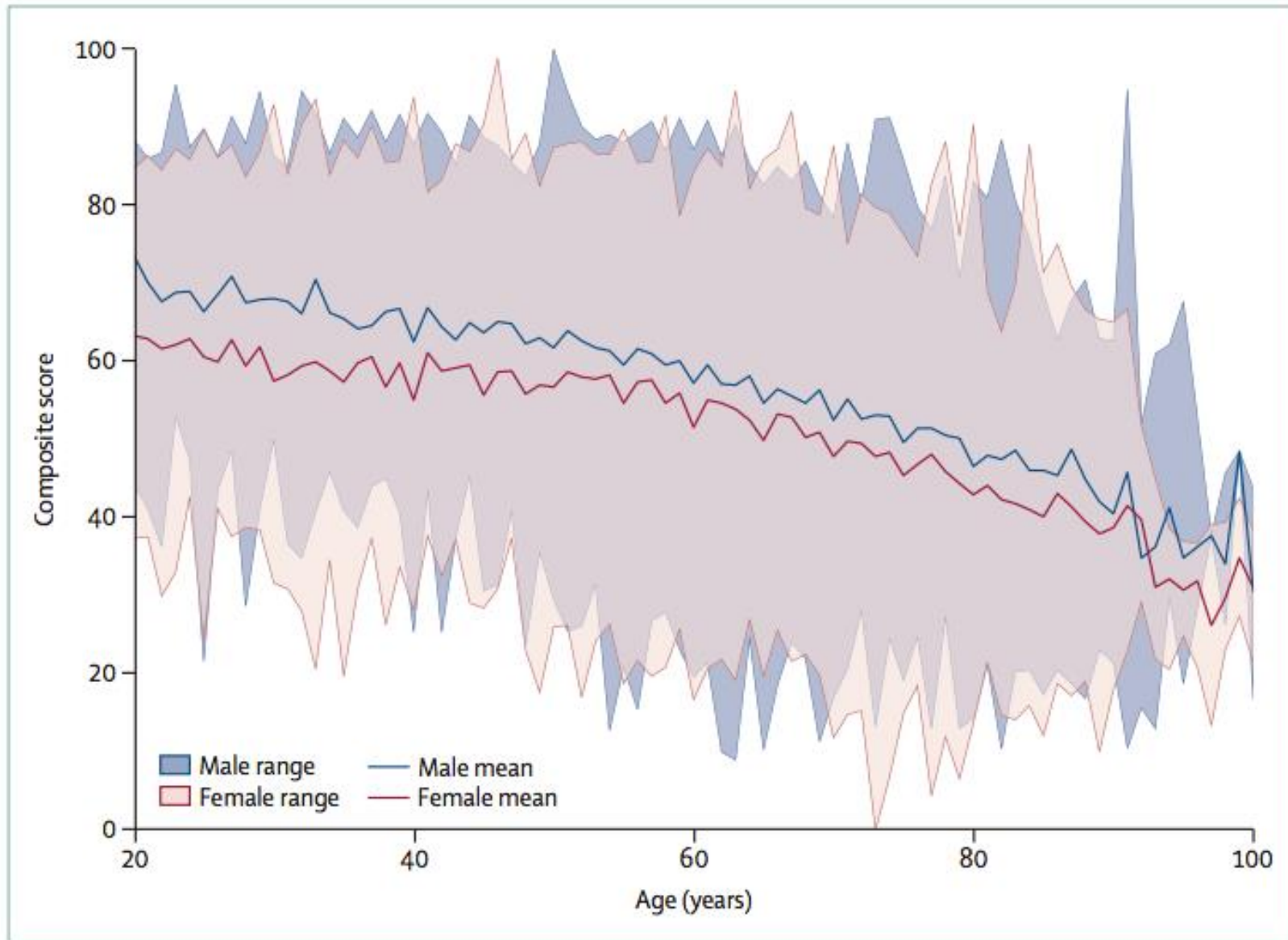
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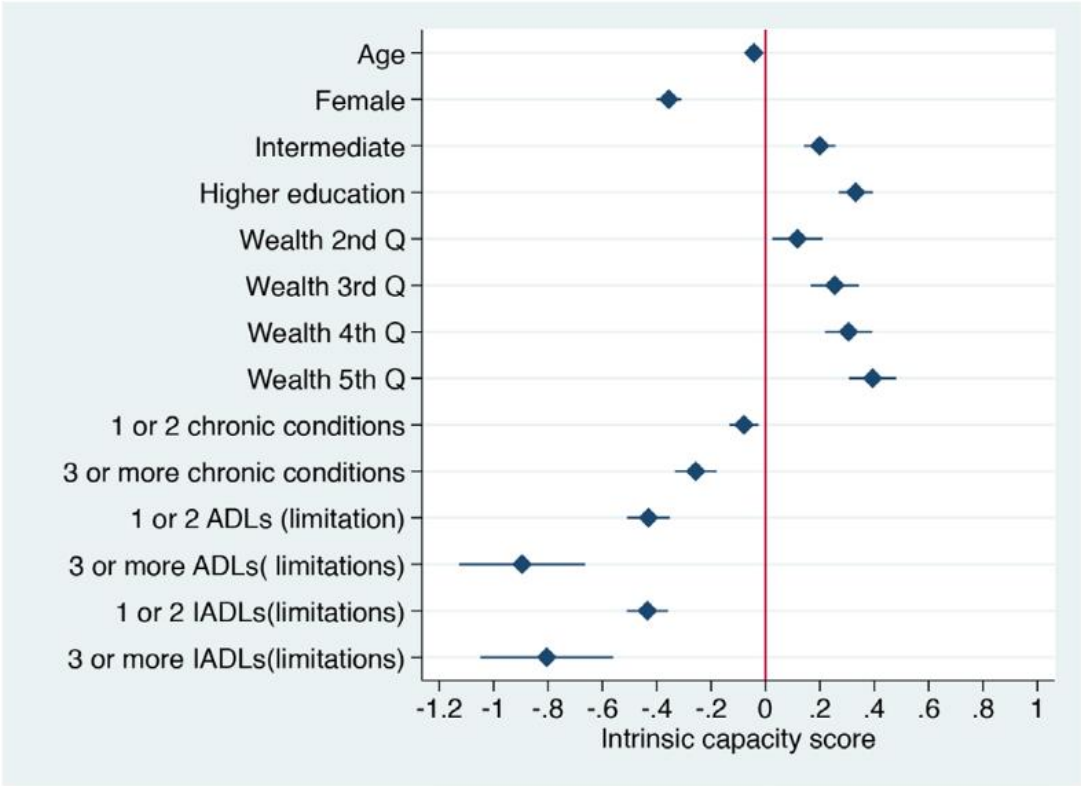
**Figure 3: Range and mean intrinsic capacity of men and women in countries in the Study on global AGEing and adult health 2007–2010 (wave 1)<sup>42</sup>**

# The structure and predictive value of intrinsic capacity in a longitudinal study of ageing

BMJ Open 2019;9:e026119.

John R Beard <sup>1,2</sup>, A T Jotheeswaran,<sup>1</sup> Matteo Cesari,<sup>3</sup>  
Islene Araujo de Carvalho <sup>1</sup>

English Longitudinal Study on Ageing  
N=2,560 participants aged 60+ yo



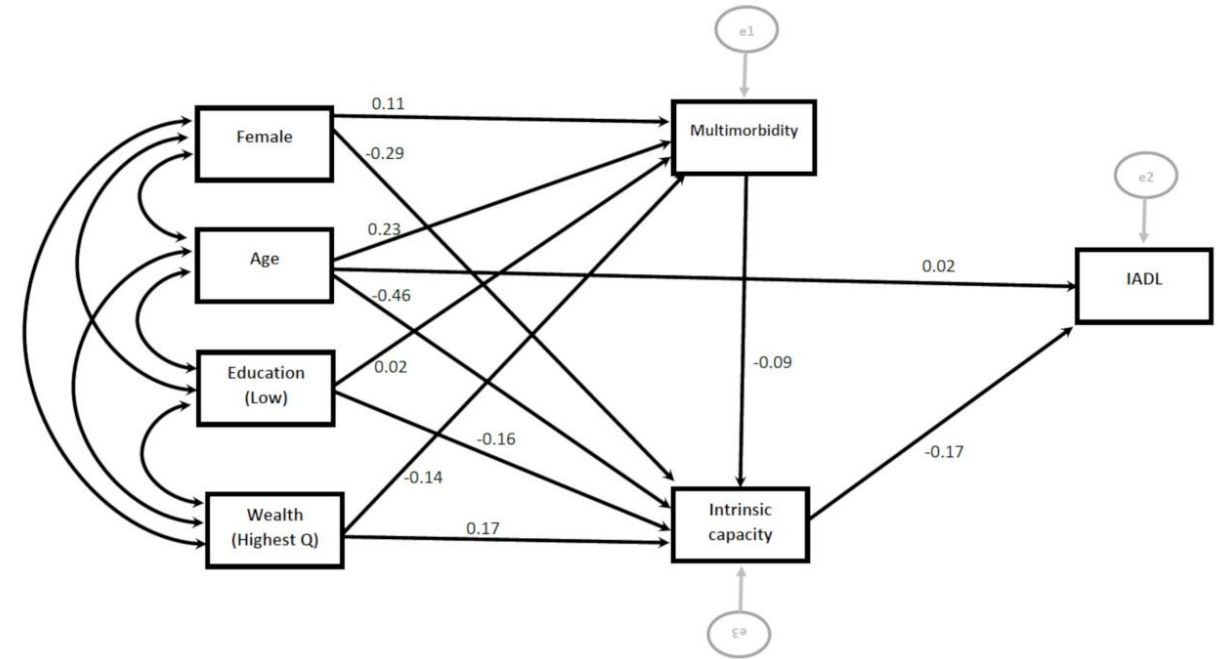
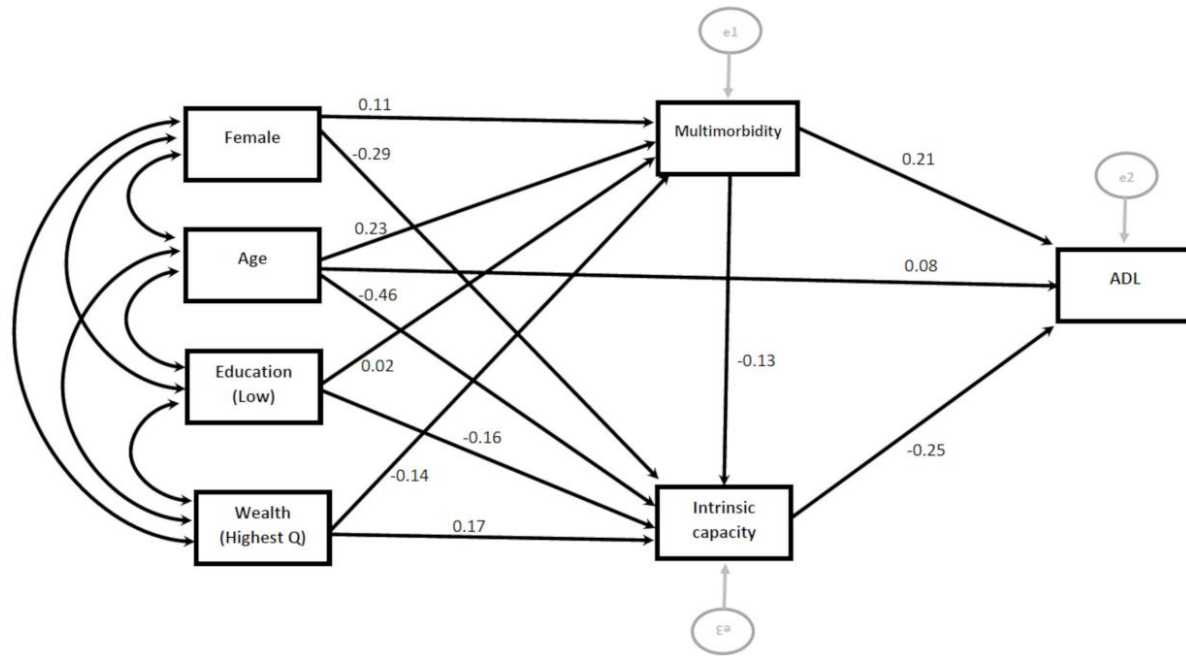


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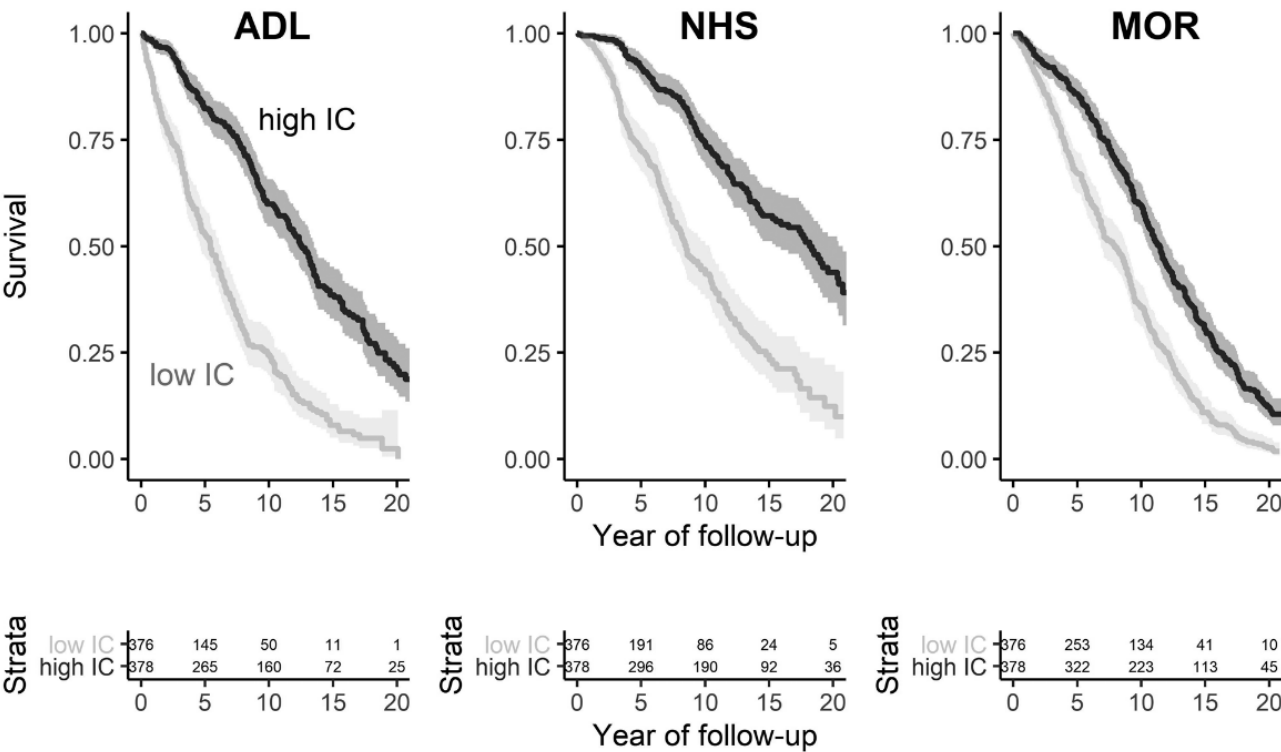
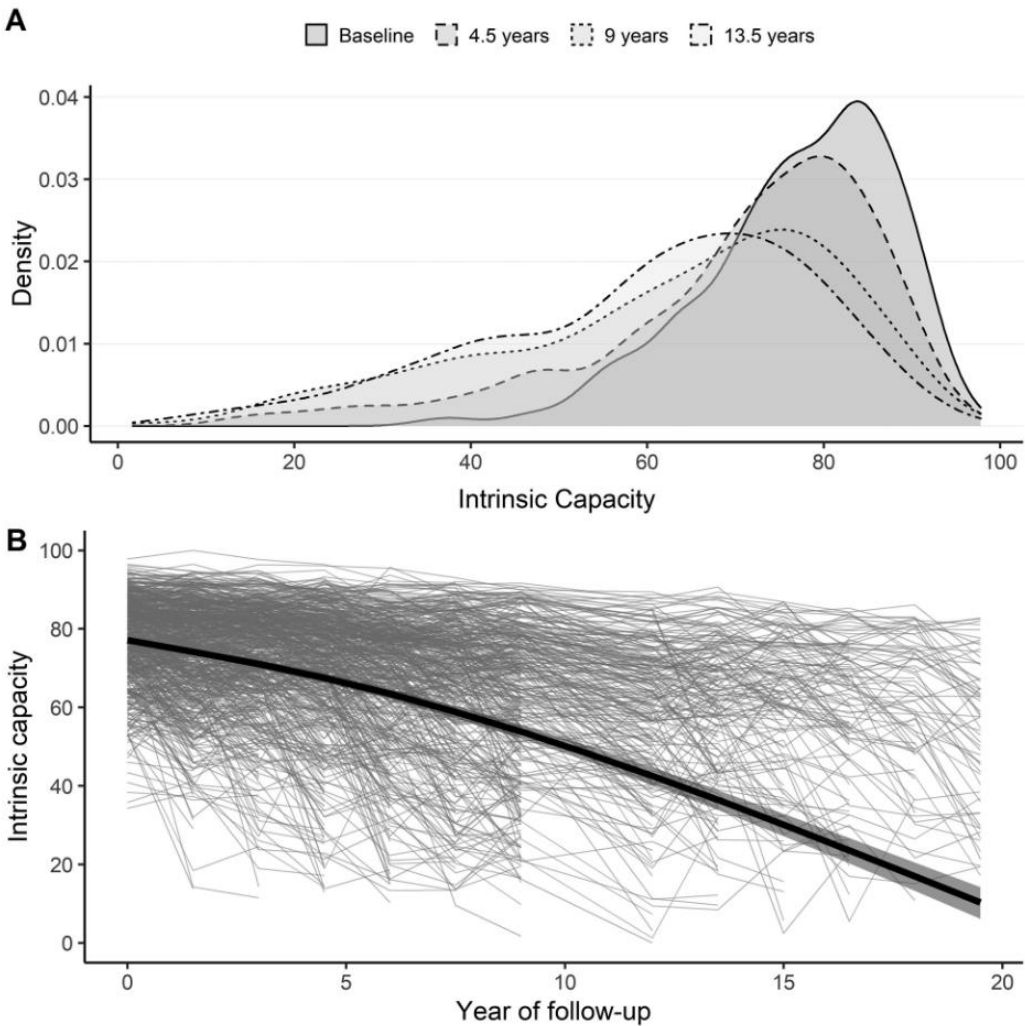


# Intrinsic Capacity Predicts Negative Health Outcomes in Older Adults

*J Gerontol A Biol Sci Med Sci*  
2022;77(1):101–5

Erwin Stolz, PhD,<sup>1,\*</sup> Hannes Mayerl, PhD,<sup>1</sup> Wolfgang Freidl, PhD,<sup>1</sup>  
Regina Roller-Wirnsberger, MD,<sup>2</sup> and Thomas M. Gill, MD<sup>3,Ⓞ</sup>

N=754 participants aged 70+ yo; follow-up 21 years



# Validating intrinsic capacity to measure healthy aging in an upper middle-income country: Findings from the ELSI-Brazil

Márlon J.R. Aliberti,<sup>a,b,1\*</sup> Laiss Bertola,<sup>a,1</sup> Claudia Szlejf,<sup>a,c</sup> Déborah Oliveira,<sup>d</sup> Ronaldo D. Piovezan,<sup>e</sup> Matteo Cesari,<sup>f</sup> Fabíola Bof de Andrade,<sup>g</sup> Maria Fernanda Lima-Costa,<sup>g,h</sup> Monica Rodrigues Perracini,<sup>i</sup> Cleusa P. Ferri,<sup>d</sup> and Claudia K. Suemoto<sup>a</sup>

Brazilian Longitudinal Study on Aging (ELSI-Brazil)  
N=7,175 participants aged 50+ yo

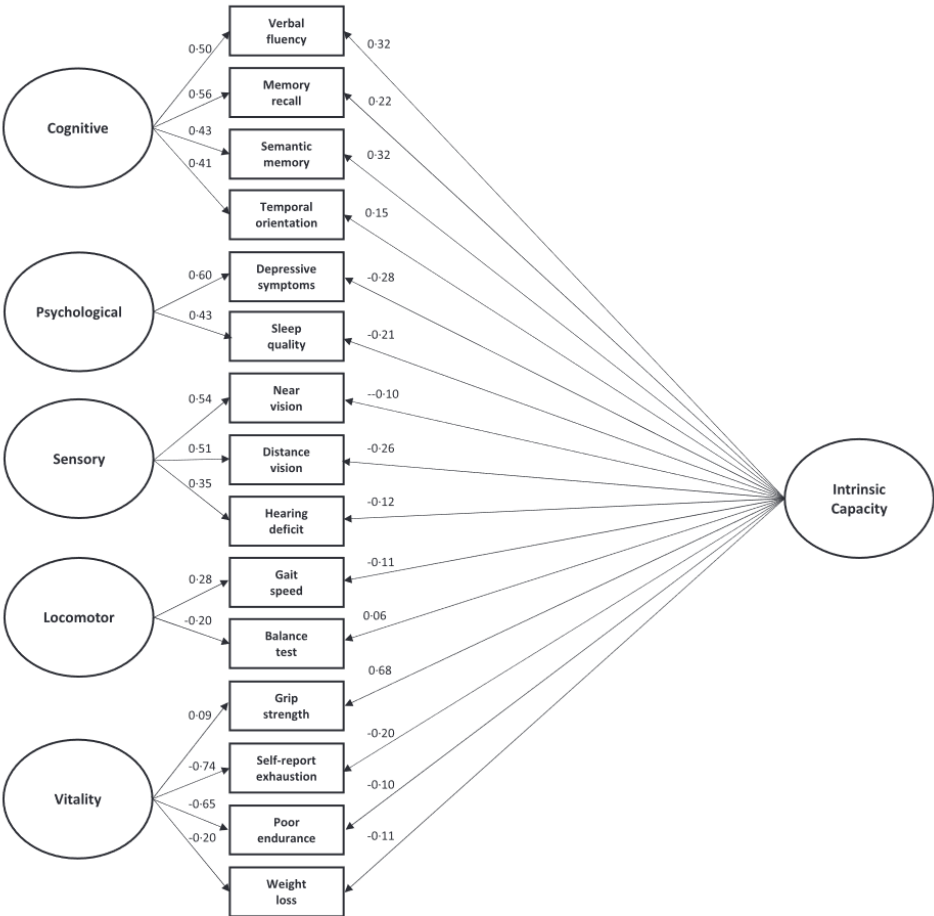
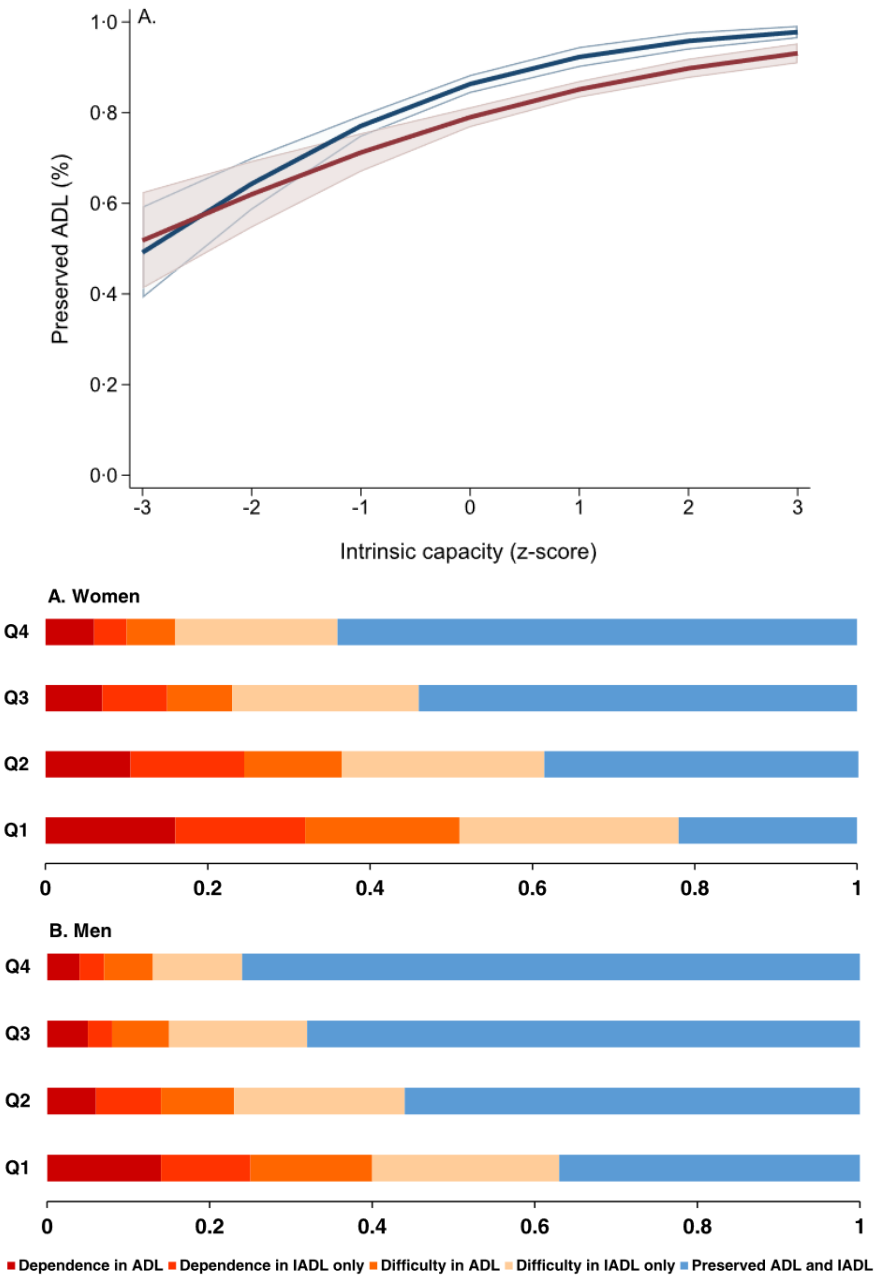



Figure 1. Bi-factor confirmatory factor analysis model of intrinsic capacity.







# Handbook

Guidance on person-centred assessment  
and pathways in primary care

## Generic care pathway

### Person-centered assessment and pathways in primary care

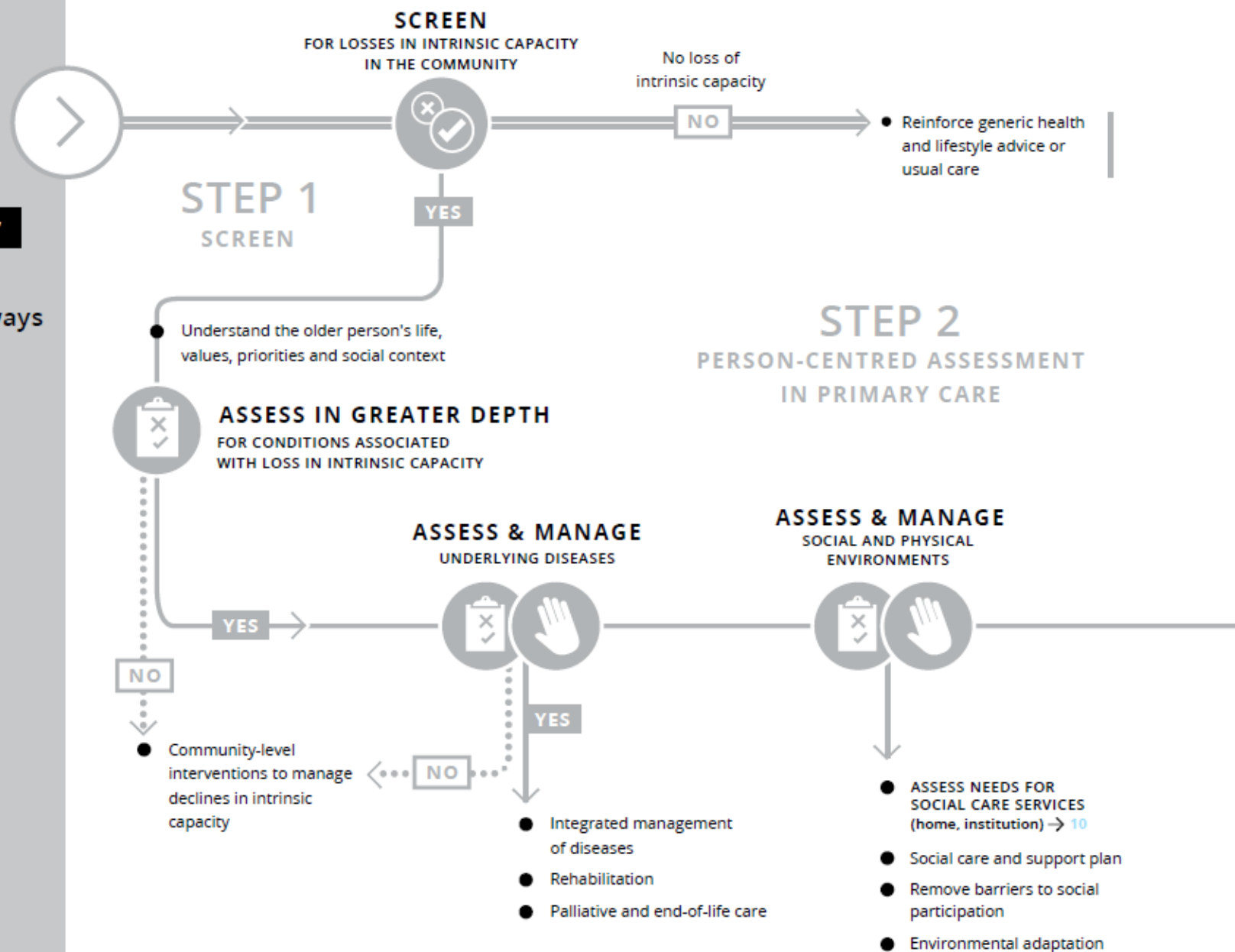
TABLE 1.  
WHO ICOPE SCREENING TOOL

Priority conditions associated with declines in intrinsic capacity	Tests	Assess fully if any answer in each domain triggers this
<b>COGNITIVE DECLINE</b> (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?	<div> <input type="radio"/> Wrong to either question or does not know         </div> <div> <input type="radio"/> Cannot recall all three words         </div>
<b>LIMITED MOBILITY</b> (Chapter 5)	Chair rise test: Rise from chair five times without using arms. Did the person complete five chair rises within 14 seconds?	<div> <input type="radio"/> No         </div>
<b>MALNUTRITION</b> (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?	<div> <input type="radio"/> Yes         </div> <div> <input type="radio"/> Yes         </div>
<b>VISUAL IMPAIRMENT</b> (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)?	<div> <input type="radio"/> Yes         </div>
<b>HEARING LOSS</b> (Chapter 8)	Hears whispers (whisper test) or  Screening audiometry result is 35 dB or less or  Passes automated app-based digits-in-noise test	<div> <input type="radio"/> Fail         </div>
<b>DEPRESSIVE SYMPTOMS</b> (Chapter 9)	Over the past two weeks, have you been bothered by – feeling down, depressed or hopeless?  – little interest or pleasure in doing things?	<div> <input type="radio"/> Yes         </div> <div> <input type="radio"/> Yes         </div>

# 3

## Generic care pathway

Person-centered  
assessment and pathways  
in primary care





## STEP 3

### DEVELOP PERSONALIZED CARE PLAN

- Person-centred goal setting
- Multidisciplinary team
- Design a care plan including multi-component interventions, management of underlying diseases, self-care and self-management, and social care and support

## STEP 5

### ENGAGE COMMUNITIES AND SUPPORT CAREGIVERS

## STEP 4

### ENSURE REFERRAL PATHWAY AND MONITORING OF THE CARE PLAN

WITH LINKS TO SPECIALIZED GERIATRIC CARE

# 3

## Generic care pathway

Person-centered  
assessment and pathways  
in primary care

# ICOPE

Handbook App



# ICOPE

Handbook APP

Supporting community workers to assess the health and social care needs of older people and design a personalized care plan using the WHO Guidelines on Integrated Care for Older People

NEW PERSON

RETURNING PERSON

TRAINING TOOL

SETTINGS



LIMITED MOBILITY

SCREENING



CHAIR RISE TEST ⓘ

00:00:00

START

RESET

Able to complete five chair rises without arms in 14 seconds?

Yes



No



< Back



Next >



SCREENING RESULT

POSSIBLE DECLINE IN INTRINSIC CAPACITY



Refer to primary health care clinic for in-depth assessment

Begin

ASSESSMENT

< Back



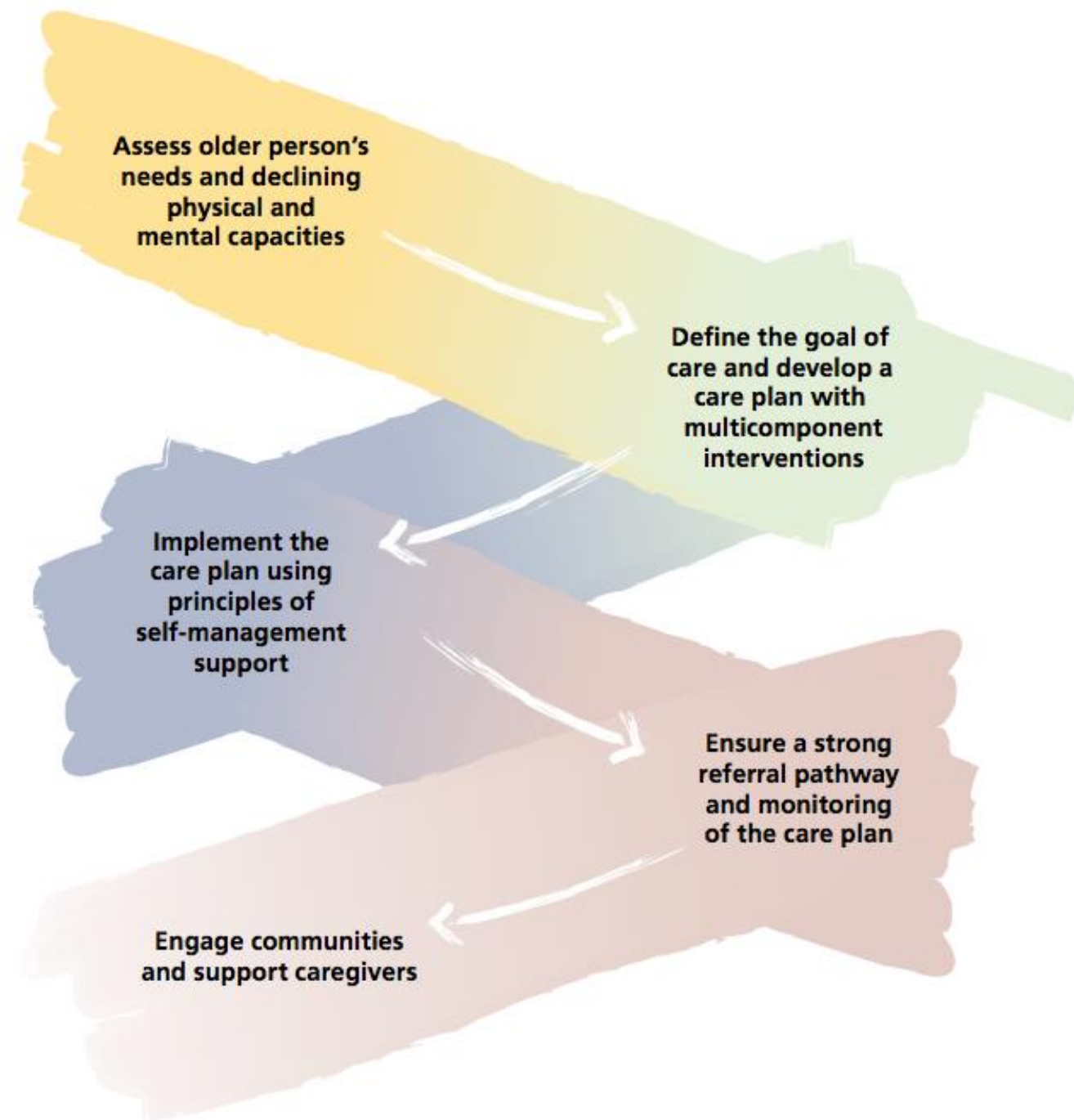


## Integrated care for older people

Guidelines on community-level interventions to manage declines in intrinsic capacity



World Health Organization





# Why Integrated Care is needed

Older people are frequently faced with...

## 1 Fragmented services



**SPECIALIZED DOCTORS**



**HOSPITALS**



**PRIMARY HEALTH CLINIC**

## 4 Lack of interventions to optimize Intrinsic Capacity and Functional Ability




## 2 Too far from where they live

## 3 Ageist attitudes of healthcare workers

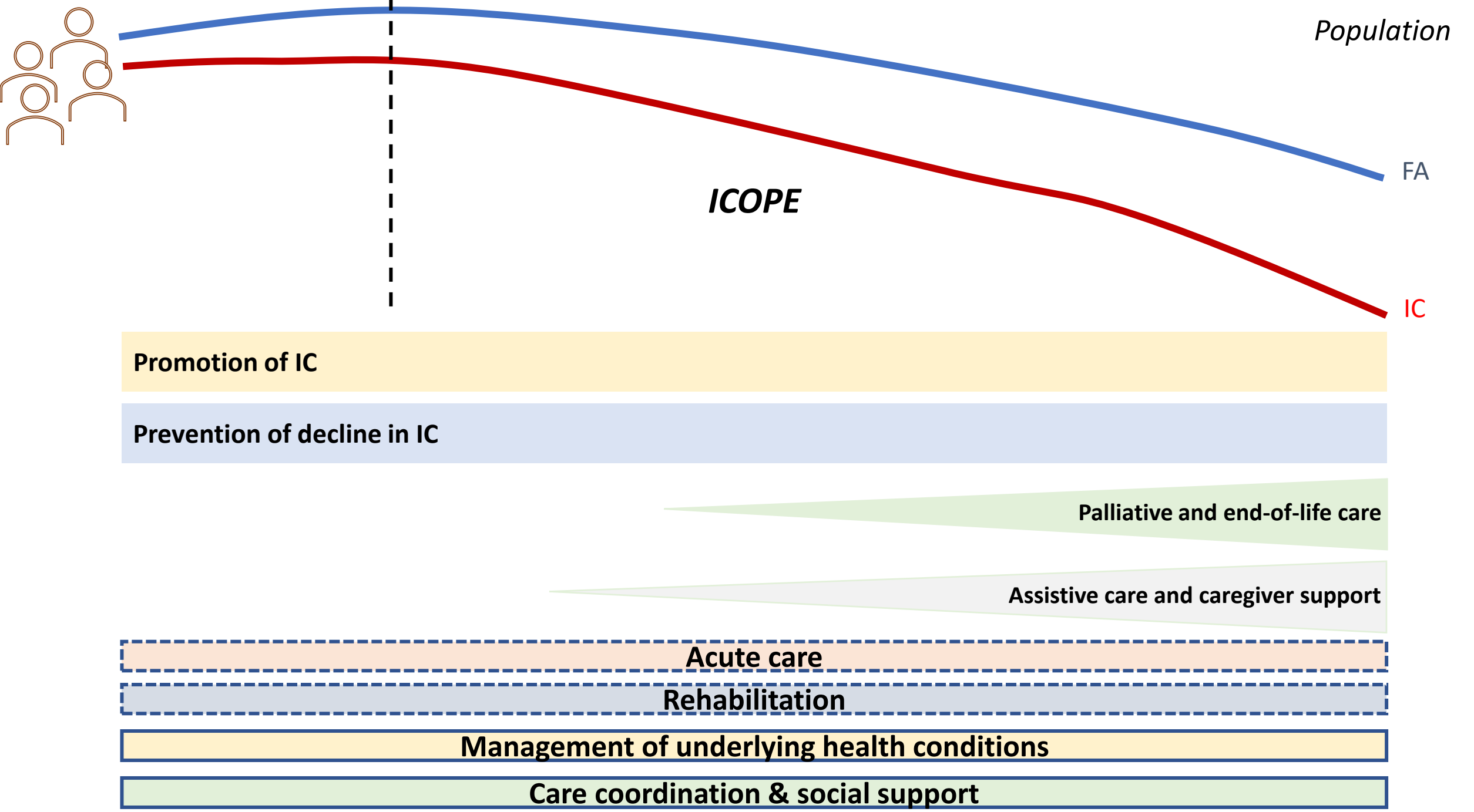
### INTEGRATED CARE

is important  
to help older adults  
maximize their  
Intrinsic Capacity and  
Functional Ability in  
the community

# Implementing care for healthy ageing

Matteo Cesari <sup>1</sup>, Yuka Sumi,<sup>1</sup> Zee A Han <sup>1</sup>, Monica Perracini,<sup>1</sup>  
Hyobum Jang <sup>1</sup>, Andrew Briggs,<sup>1</sup> Jotheeswaran Amuthavalli Thiyagarajan,<sup>1</sup>  
Ritu Sadana,<sup>1</sup> Anshu Banerjee<sup>2</sup>

Integrated care for older people reflects a **continuum of care that** will help to **reorient health and social services** towards a more **person-centred** and **coordinated model of care** that supports optimising functional ability for older people







FA  
IC

CASE EXAMPLE person A

1

Pneumonia

2

Hip fracture

3

Pneumonia,  
Delirium  
Dementia

4

Cognitive Decline

FA

IC

Promotion of IC

Prevention of decline in IC

Palliative and end-of-life care

Assistive care and caregiver support

Multimodal exercise, nutrition,  
Cognitive stimulation

Acute care

Walking aid

Acute care

Rehabilitation

Walker, Home  
modification

Acute care

Rehabilitation

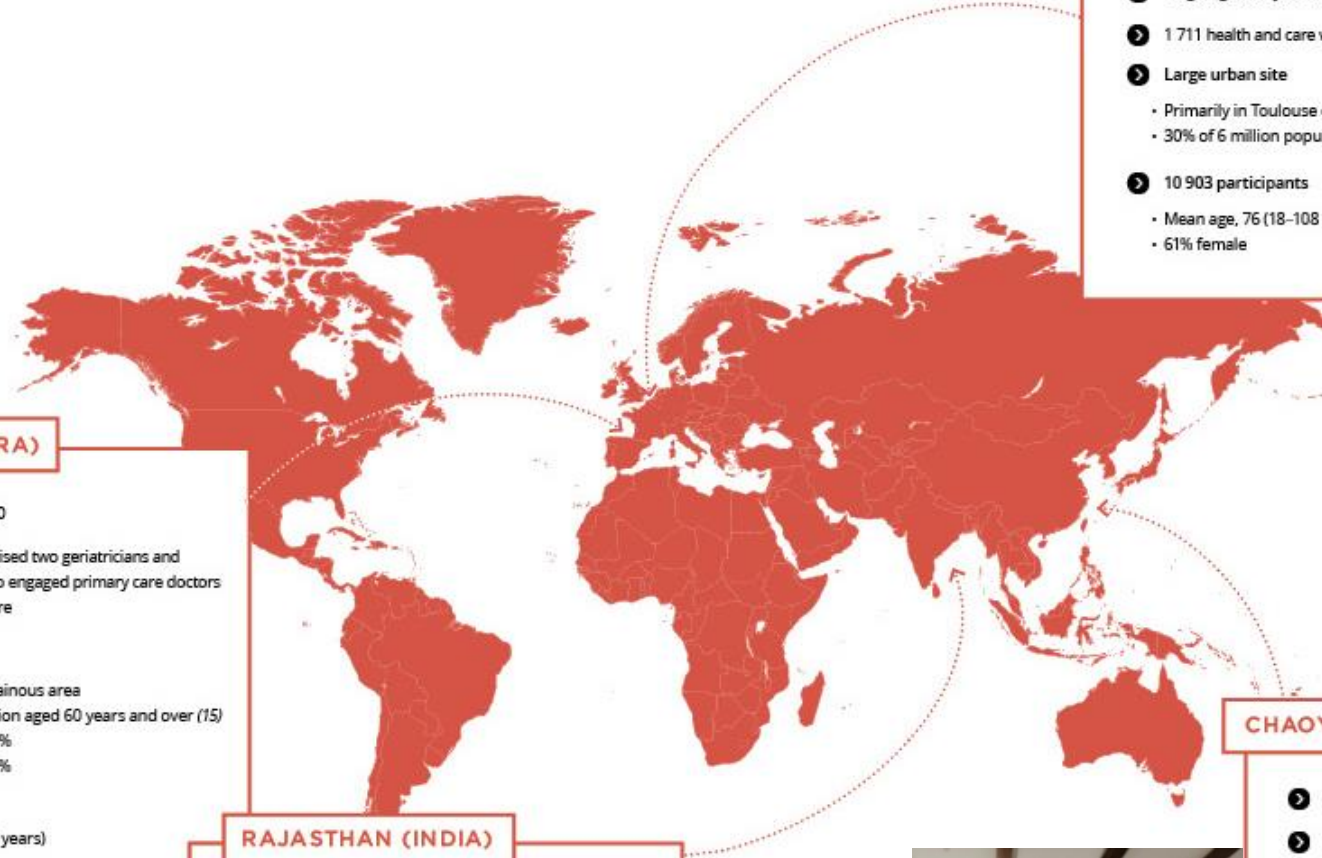
Home visit by  
nurse & caregiver

Acute care

Management of underlying health conditions

Care coordination & social support

# Country case studies



## OCCITANIE (FRANCE)

- Ongoing since January 2020 (Data to November 2021)
- 1 711 health and care workers, 410 nurses
- Large urban site
  - Primarily in Toulouse city
  - 30% of 6 million population aged 60 years and over (17)
- 10 903 participants
  - Mean age, 76 (18–108 years with 96% aged 60 or more)
  - 61% female

## CANILLO (ANDORRA)

- July to September 2020
- The study team comprised two geriatricians and a geriatric nurse. It also engaged primary care doctors to ensure follow-up care
- Small urban site
  - Small town in mountainous area
  - 18% of 4 422 population aged 60 years and over (15)
  - 798 over 60 years: 18%
  - 523 over 65 years: 12%
- 72 participants
  - Mean age, 73 (65–92 years)
  - 54% female

## RAJASTHAN (INDIA)

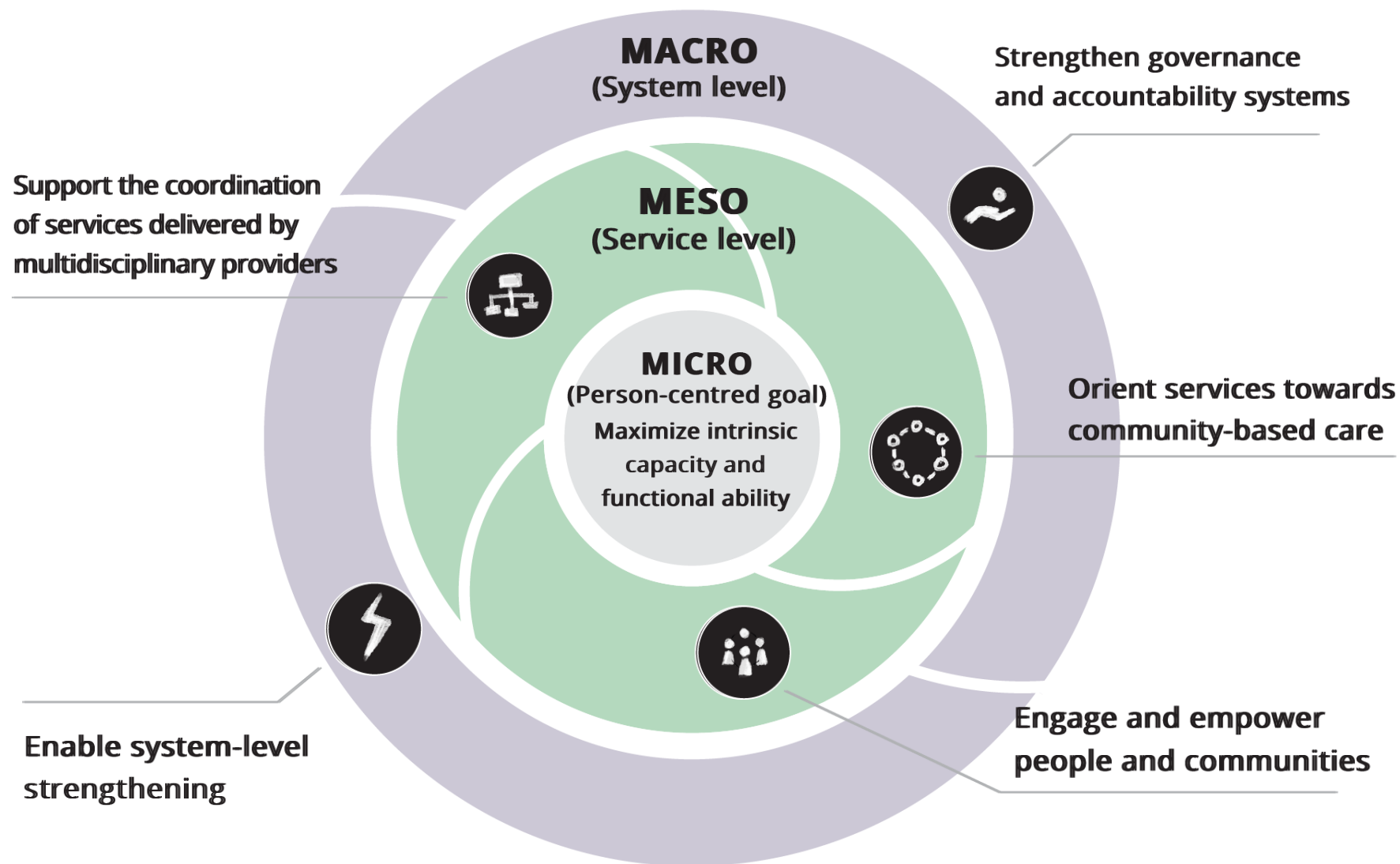
- January to May 2021
- Fifteen public health students were trained to implement the screening step of ICOPE
- Rural site
  - Two villages in the Jodhpur district of Rajasthan
  - 8% of 69 million population aged 60 years and over (18)
- 451 participants
  - Mean age, 68 (65–98 years)
  - 46% female

## CHAOYANG (CHINA)

- June 2020 to August 2021
- Over 22 000 health workers, including primary care physicians, nurses, rehabilitation therapists and social workers, and over 200 partner organizations and facilities
- Large urban site
  - Largest district in Beijing city
  - 21% of 3.45 million population aged 60 years and over (16)
- 874 participants
  - Mean age, 82.8 (70–100 years)
  - 61% female



# Service and System level in ICOPE implementation framework



# CONCLUSIONS

- The ***sustainability of care systems*** is today challenged by the number and complexity of older persons
- ***Need to re-orient services*** from disease- to capacity/function-centered models (i.e., intrinsic capacity and functional ability)
- The change of paradigms and evolution of the systems (towards integration of care) may be facilitated by experience gained by the ***geriatric workforce*** over the years
- Our workforce should play a role at ***training*** the future generations of care professionals to the principles of geriatric medicine with the final aims of ***decentralizing and improving care for older persons***



# Thank you!

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