Intrinsic capacity in older patients with cancer

Dr Abhijith R Rao

Fellow in Geriatric oncology

Dept. Medical Oncology

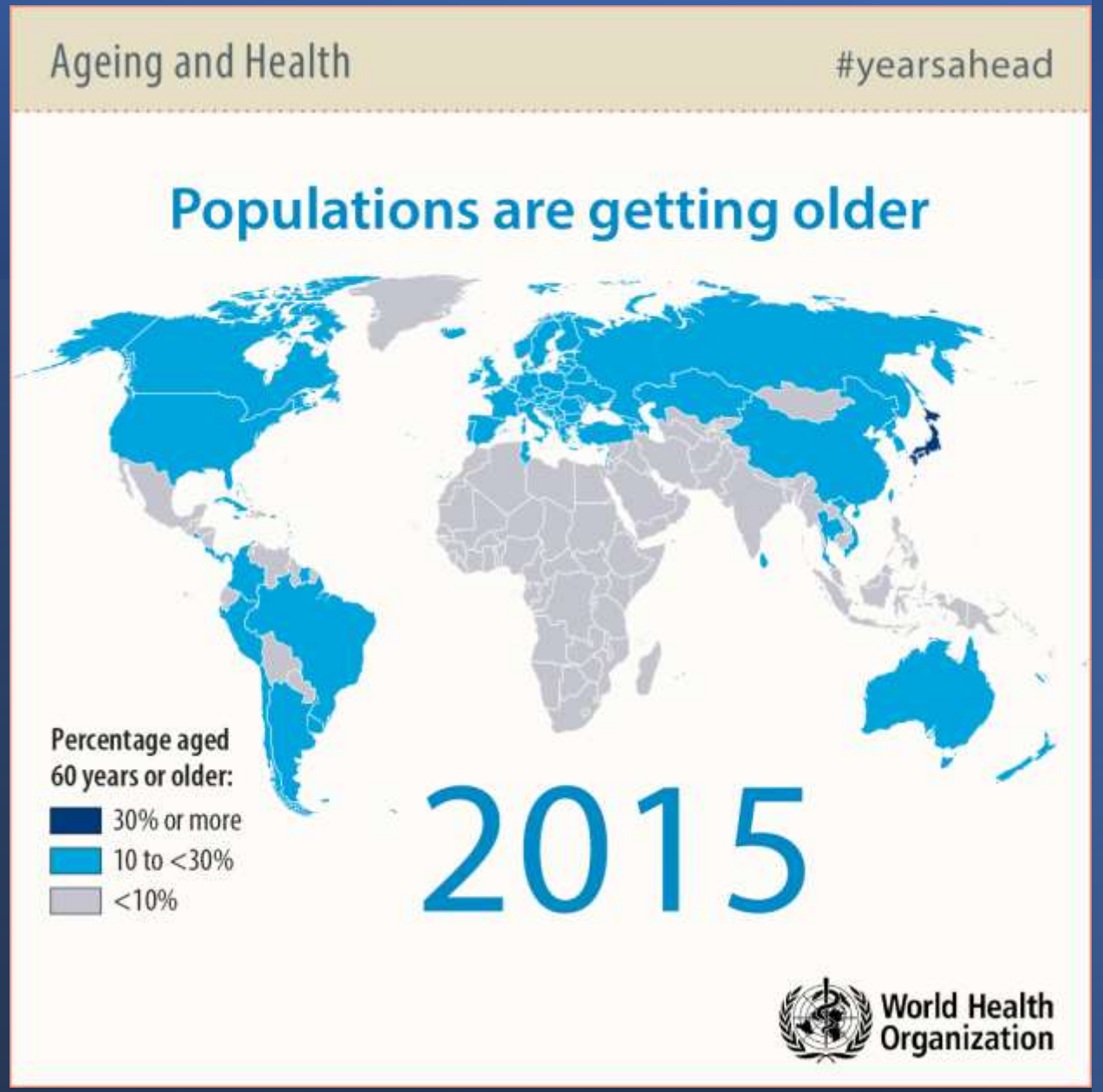
Tata memorial hospital, Mumbai

Disclosure

No conflict of interest

Content

- Older population- unique
- Role of geriatric assessment
- Healthy ageing and intrinsic capacity
- Assessment of intrinsic capacity
- IC in older patients with cancer



WHO ageing and health 2021

Older population- unique

- Rate of biological aging is heterogenous across individuals
- Health, functional status and quality of life (QoL)
  - Not summarized by sum of diseases
- Older persons are at higher risk of developing
  - Single and multiple diseases
  - Experience a certain degree of functional and cognitive deterioration
  - Likely to report depressive symptoms
  - Their family, social, and financial conditions are complex

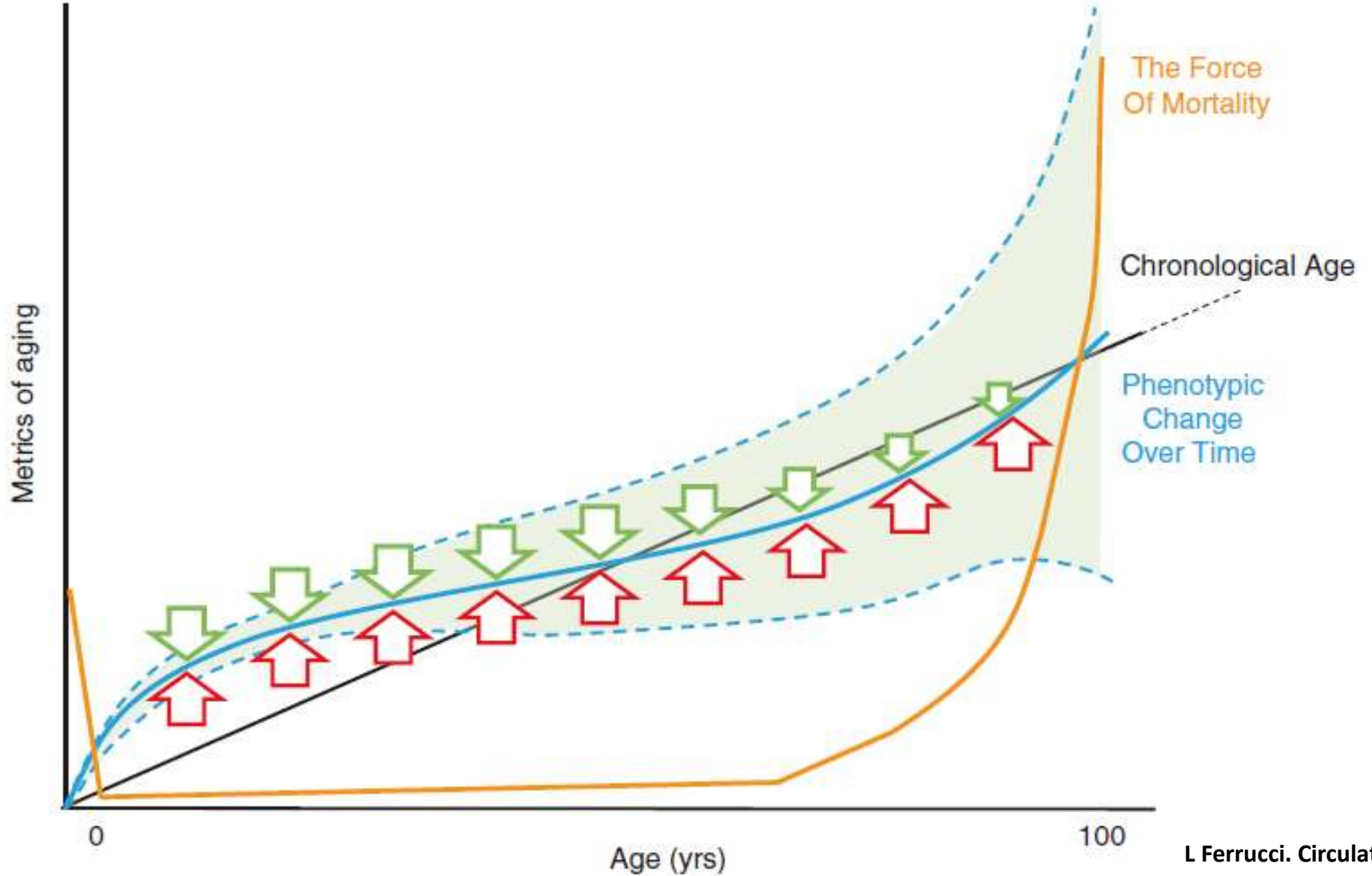
Comprehensive geriatric assessment

- Comprehensive geriatric assessment (CGA)
  - Approach to the care of older persons- a critical milestone
- Improving medical outcomes and quality of life in older persons
  - Requires a multidisciplinary approach

- Warren in late 1930s
  - Operational idea
  - Complexity could be handled through CGA
- Consider- an index of phenotypic aging as opposed to chronological aging

Ismail K et al. J Am Geriatr Soc. 2016

Chronological age vs Biological age



L Ferrucci. Circulation Research 2018;123:740-744

Comprehensive geriatric assessment

- Multidimensional and interdisciplinary
- Diagnostic process
- Focussed to determining a frail older person's
  - Medical
  - Psychological
  - Functional capability
- To develop
  - Coordinated and integrated plan for treatment
  - Long-term follow-up

Rubenstein et al. J Am Geriatr Soc. 1991

Comprehensive geriatric assessment

- Traditional disease-oriented model
  - Inadequate
  - Address need of older population
- Recently proposed constructs
  - Intrinsic capacity (IC) and physical resilience (PR)
  - Potential to reshape future of care for older patients with cancer
- In contrast to frailty
  - Centered on functional deficits
  - These constructs accentuate positive health attributes

Frailty Phenotype

Reference:

Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, Seeman T, Tracy R, Kop WJ, Burke G, McBurnie MA. Frailty in older adults: Evidence for a phenotype. *J Gerontol A Biol Sci Med Sci.* 2001;56:M146-156

Frailty Index

Reference:

Rockwood K and Mitnitski A. Frailty Defined by Deficit Accumulation and Geriatric Medicine Defined by Frailty. Clin Geriatr Med 2011; 27: 17-26

https://www.bidmc.org/research/research-by-department/medicine/gerontology/calculator

Benefits of measuring frailty

- Detection of frailty
  - Inform and modify decisional algorithm
- Screening for frailty is NOT an endpoint
- Consider as entry point:
  - Model adapted care for individuals at risk of negative outcomes
- Identification of frailty- analysis of
  - Causes
  - Contributors to increased vulnerability

Original Article: Geriatric Oncology Section

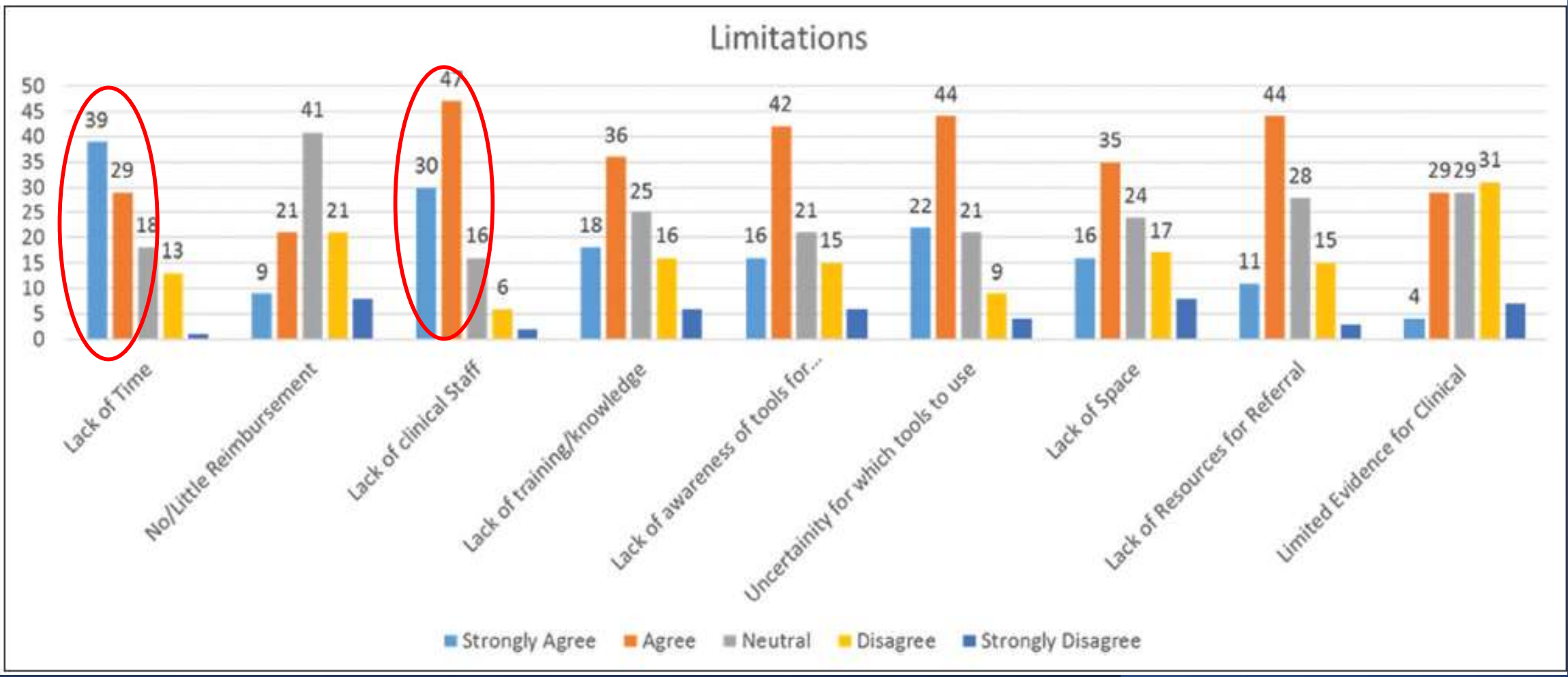
Oncologists' perceptions of the need for assessing individual domains in the geriatric assessment and worthwhile outcomes in treating older patients with cancer: A questionnaire-based survey

Cancer Research, Statistics, and Treatment | Published by Wolters Kluwer - Medknow

Vanita Noronha, Devanshi Kalra, Anant Ramaswamy, Shreya C Gattani, Nandini Menon, Vijay M Patil, Kumar Prabhash
Department of Medical Oncology, Tata Memorial Hospital, Mumbai, Maharashtra, India

74% referred <10% for a GA

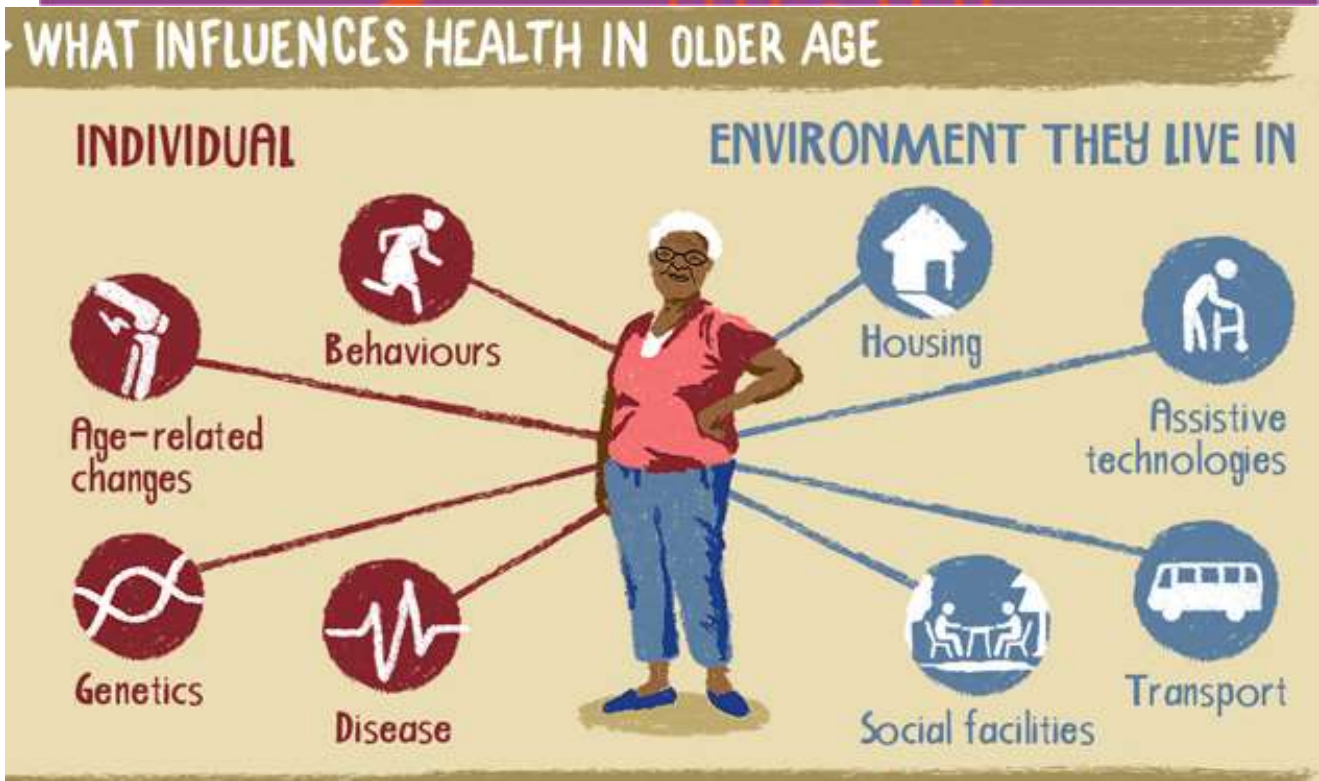
Survey for geriatric assessment in practicing oncologists in India



Healthy aging

Healthy aging

- World Health Organization (WHO): Healthy aging
  - Process of developing and maintaining
  - Functional ability
  - Required for healthy life of older adults
- Not: Presence or absence of disease
  - Focus on Functioning-based approach
  - Oriented around building and maintaining the
  - To do things they value
- ‘Functional ability’ determined by
  - Intrinsic capacity of individual
  - The environments in which they live
  - Interaction between the two



Intrinsic Capacity :

Composite of all the physical and mental capacities of an individual

Functional ability :

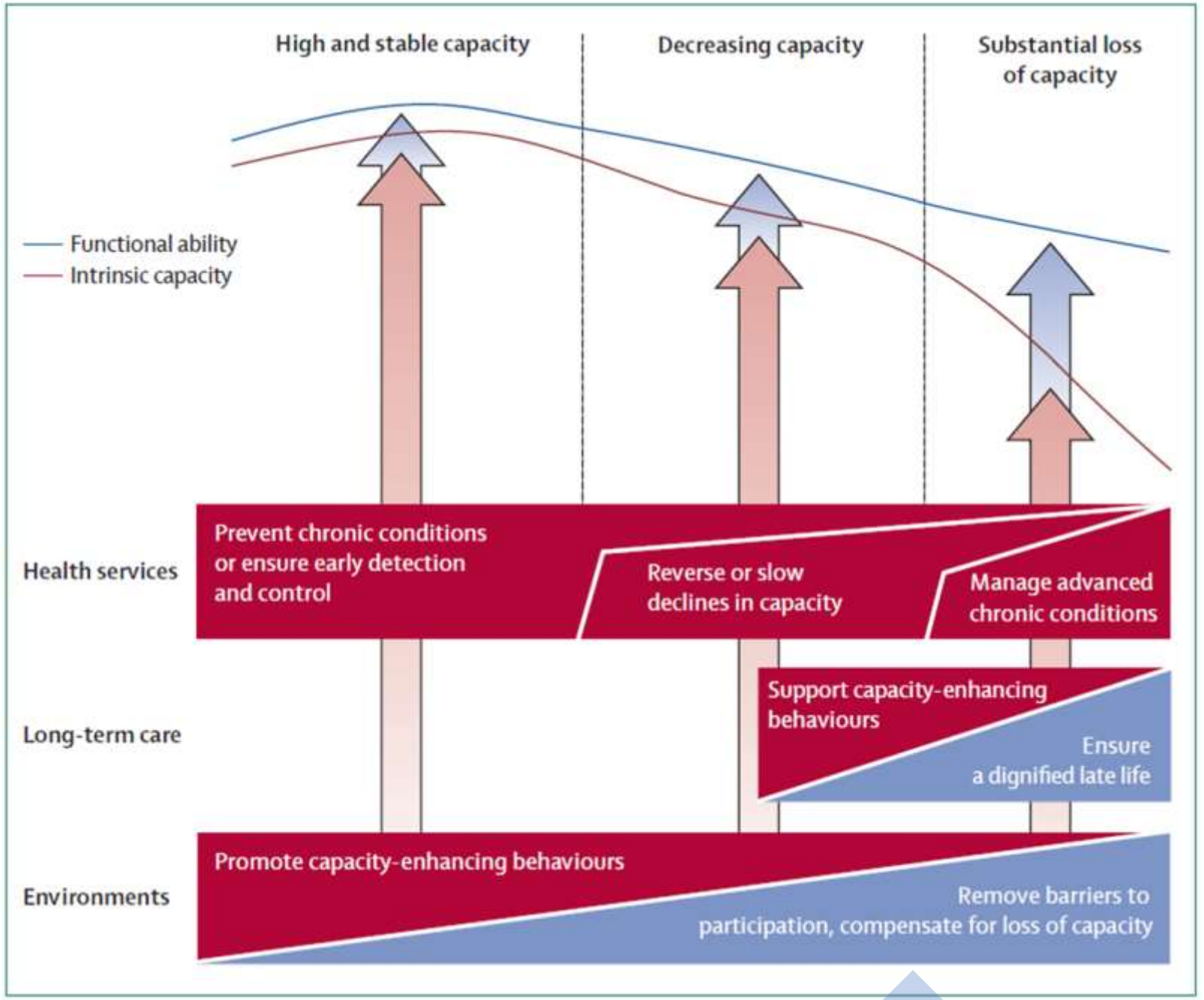
Combination and interaction of IC with the environment

Intrinsic capacity

Limited function

Improved vision

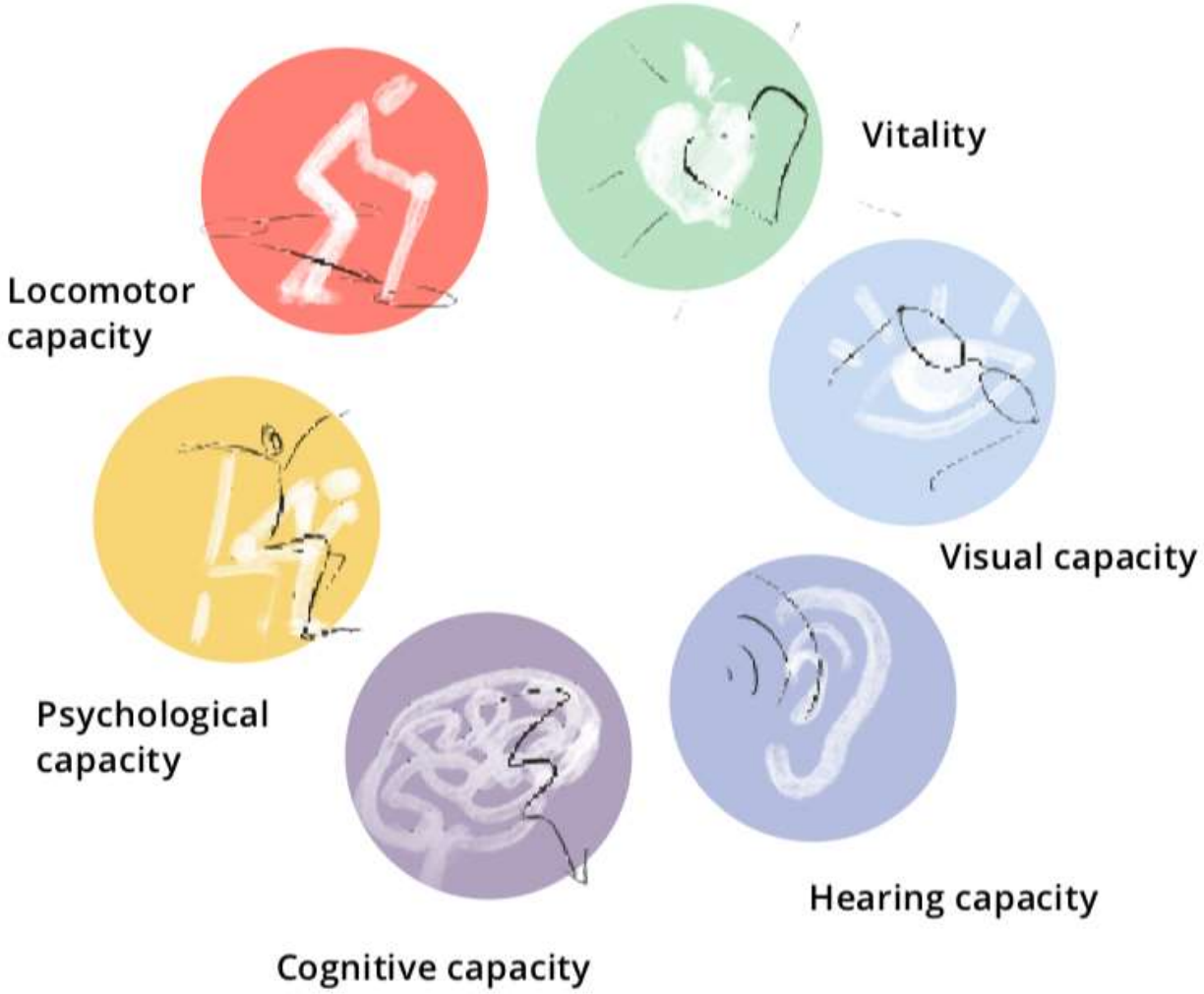
Improved
functional ability

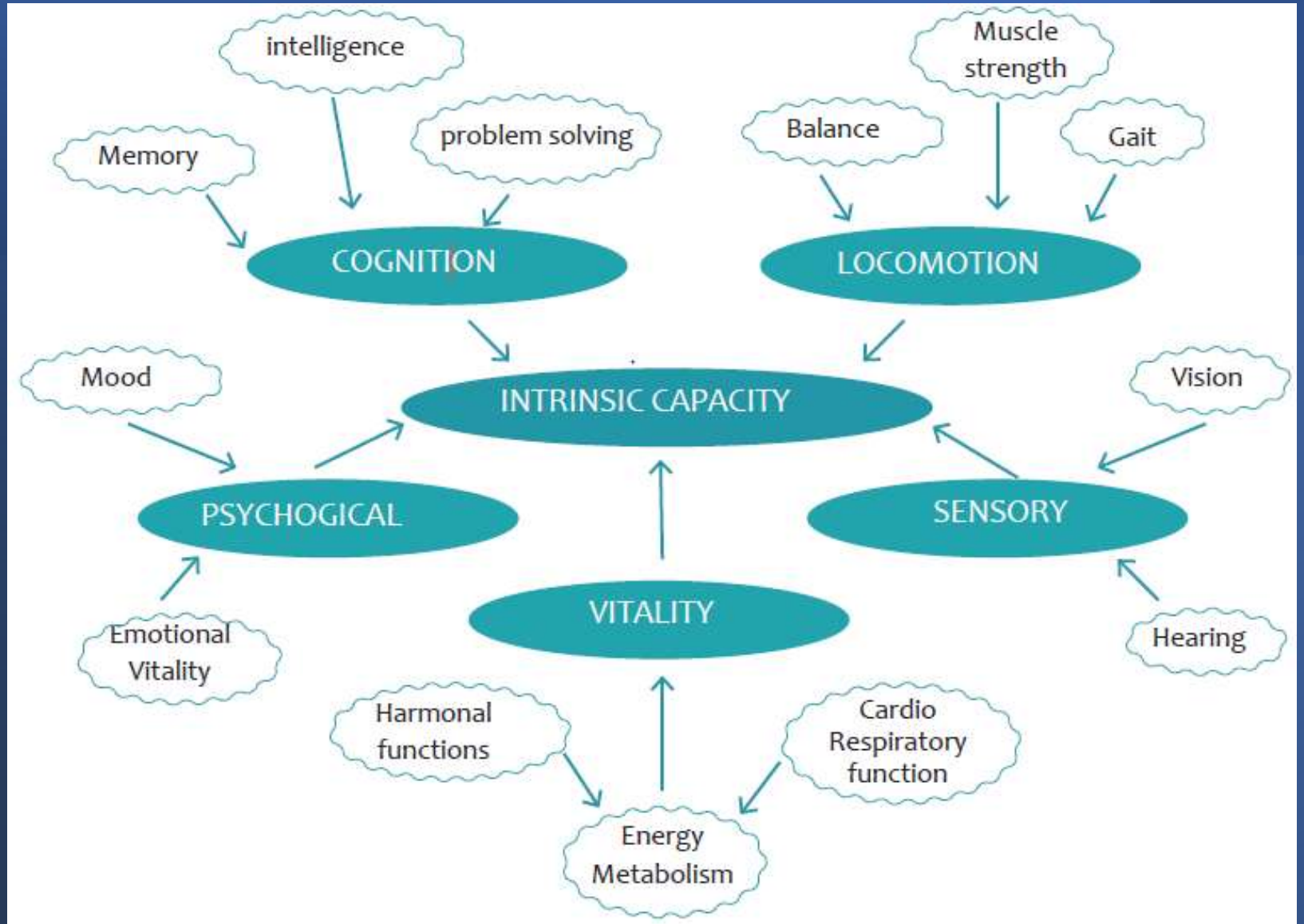


WHO ICOPE handbook

Intrinsic Capacity

- Domains of intrinsic capacity
  - Locomotion
  - Sensory
  - Vitality
  - Psychological
  - Cognition

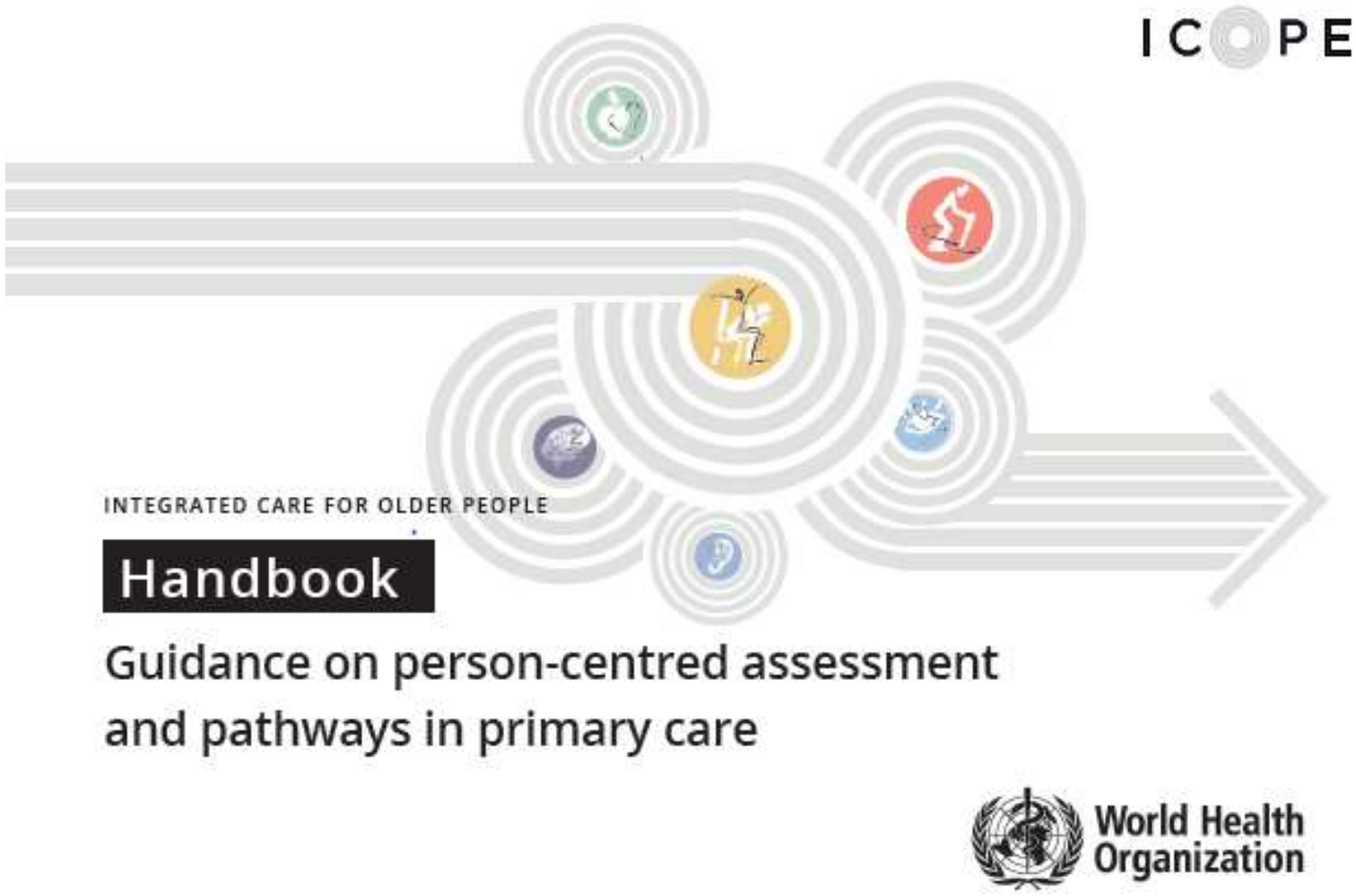




Source: Cesari, M., Carvalho, I.A., Thiyagarajan, J.A., Cooper, C., Martin, F.C., Reginster, J., Vellas, B., & Beard, J.R. (2018). Evidence for the Domains Supporting the Construct of Intrinsic Capacity. The Journals of Gerontology: Series A, 73, 1653–1660.

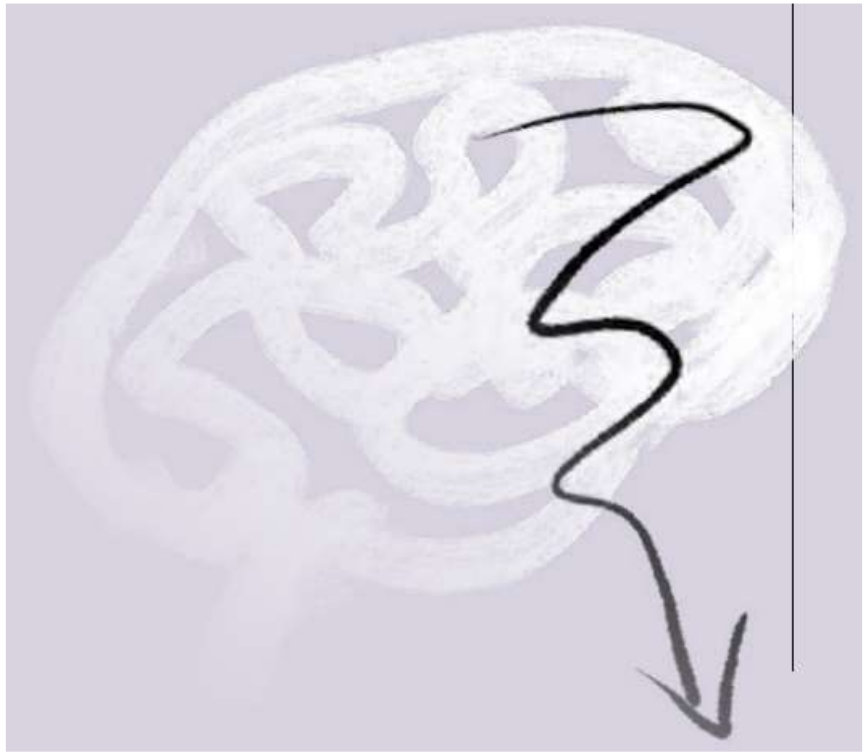
How to evaluate Intrinsic capacity?

Integrated Care for Older People (ICOPE)



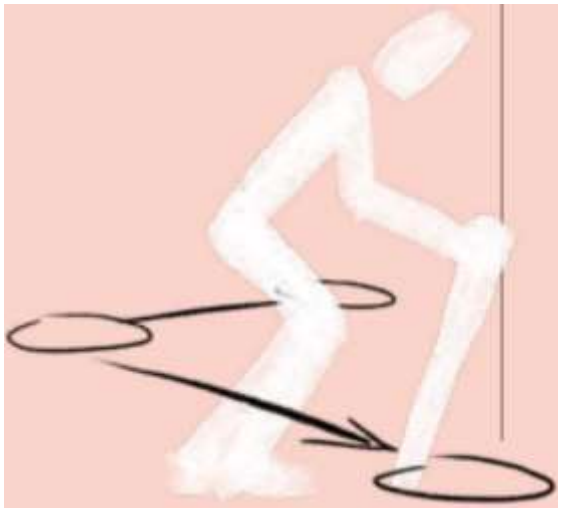
Cognitive capacity

- Ask
  - Do you have problems with memory or orientation (such as not knowing where one is or what day it is)?
- Screen
  - Remembering three words
  - Orientation in time and space
  - Recalling three words
- Pass or fail?
  - If cannot answer one of the two questions about orientation OR
  - Cannot remember all three words



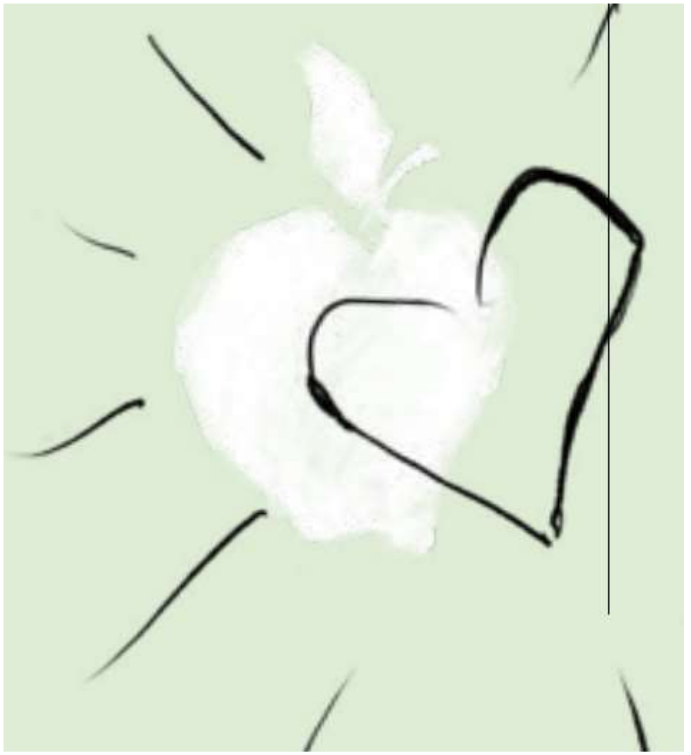
Locomotor Capacity

- Screen looses in mobility
  - Chair rise test
    - Sit in the middle of the chair
    - Cross and keep their arms over their chest
    - Rise to a full standing position and then sit down again
    - Repeat five times as quickly as possible without stopping
- If cannot stand up to ***five times*** within **14 seconds**
  - Further assessment using Short physical performance battery (SPPB)



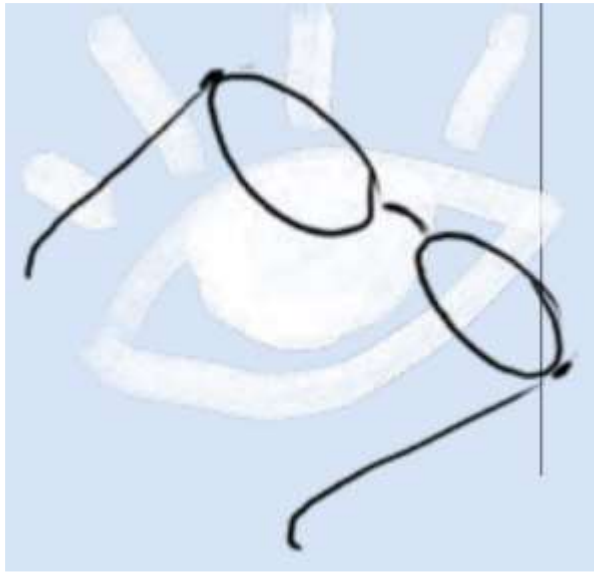
Vitality

- Ask
  - Have you unintentionally lost 3 kgs over the last three months?
  - Have you experienced loss of appetite?
  - If Yes to either question: needs evaluation
- Assess nutritional status
  - Eg: Mini-nutritional assessment
  - If score <17: Nutritional intervention necessary



Sensory (Visual and hearing capacity)

- Ask
  - Do you have any problems with your eyes: Difficulties in seeing far, reading, eye disease or currently under medical treatment (diabetes, high blood pressure)?
  - Further: test visual acuity
- Whisper voice test:
  - Stand an arm's length away behind the patient
  - Ask him/her to close one ear by pressing on the tragus
  - Softly whisper four (common, unrelated) words
  - Ask the patient to repeat
  - If patients repeats $\geq$ 3 words – normal hearing



Psychological capacity

- Ask
- Over the past 2 weeks, have you been bothered by
  - Feeling down, depressed or hopeless?
  - Little interest or pleasure in doing things?
  - If either of them is yes: Assess mood
- Screen:
  - Geriatric depression scale
  - Patient Health Questionnaire 9-item depression scale (PHQ-9)

Patient Details: **Serial Number:**

Name: Age: Gender:

Address:

Phone number:

Education: Occupation:

Care taker:

Name: Age: Gender:

Relation to patient:

Education: Occupation:

Phone number:

Anthropometry

Height: Weight: BMI: Mid arm circumference:

Calf circumference: Waist: Hip:

Grip Strength: (Right) (Left)

ICOPE Screening

Cognition: **Positive** □ **Negative** □

Three word registration (Flower, door, rice)

Response:_____

Orientation

Time and date: _____

Place: _____

Recall of three words

Response: _____

Psychological capacity: **Positive** □ **Negative** □

In the past two weeks have you been bothered by

a) Feeling down, depressed or hopeless? Yes□ No □

b) Little interest or pleasure in doing things? Yes □ No□

Locomotor capacity: **Positive** □ **Negative** □

Chair rise test

Sit in the middle of the chair. Cross and keep arms over the chest. Rise to a full standing position and then sit down again. Repeat five times as quickly as possible without stopping

Time taken:_____ (>14 seconds is positive)

Malnutrition: **Positive** □ **Negative** □

Have you unintentionally lost 3 kg over the last three months? Yes□ No □

Have you experienced loss of appetite? Yes□ No □

Hearing capacity:

Left ear: 1000 Hz: Right ear: 1000 Hz:

~~3000 Hz:~~ ~~3000 Hz:~~

Visual acuity: **Positive** □ **Negative** □

Do you have any problems with your eyes: difficulties in seeing far, reading, eye disease or currently under medical treatment (e.g: diabetes, high blood pressure)?

FRAIL Scale:

F (Fatigue): does the patient have difficulty performing housework? Some:□ A lot:□ Unable to do:□

R (Resistance): is the patient unable to walk up one flight of stairs? Some:□ A lot:□ Unable to do:□

A (Ambulation): is the patient unable to walk one block? Some:□ A lot:□ Unable to do:□

I (Illness): does the patient have more than 5 illness Yes □ No □

L (loss of weight): has the patient lost more than 5% of weight in the past 6 months? Some:□ A lot:□ Unable to do:□

Robust: 0 Pre-frail: 1-2 Frail: ≥3

SARC-F:

Strength: how much difficulty do you have in lifting and carrying 4.5 kg None:□ Some:□ A lot:□

Assistance in walking: How much difficulty do you have walking across a room? None:□ Some:□ A lot:□

Rise from a chair: how much difficulty do you have transferring from a chair or bed? None:□ Some:□ A lot:□

Climb stairs: How much difficulty do you have climbing a flight of 10 stairs? None:□ Some:□ A lot:□

Falls: how many times have you fallen in the past year? None:□ Some:□ A lot:□

Comorbidities:

□ Hypertension □ Diabetes □ Hypothyroidism

□ Coronary artery disease □ Cerebrovascular accident □ Heart failure

□ COPD □ Bronchial asthma □ ILD

□ CKD

Others:_____

Medications:

Intrinsic capacity in older patients with cancer

Open access Original research

BMJ Open

INtrinsic Capacity and its RElAtionship With Life-SpacE Mobility (INCREASE): a cross-sectional study of community-dwelling older adults in Singapore

Jia Qi Lee ,[1] Yew Yoong Ding,[2,3] Aisyah Latib,[4] Laura Tay,[3,5] Yee Sien Ng[1,3,6]

Patients: A One-Year Follow-Up Study

Xingkun Zeng Shanshan Shen Liyu Xu Yanyan Wang Yinghong Yang
Lingyan Chen Huilan Guan Jingmei Zhang Xujiao Chen

RESEARCH Open Access

Intrinsic capacity of older people in the community using WHO Integrated Care for Older People (ICOPE) framework: a cross-sectional study

Angela Y. M. Leung[1,2,3], Jing Jing Su[1,2,3], Elsa S. H. Lee[4], Jeff T. S. Fung[3] and Alex Molassiotis[1,3*]

tions with
tality in 10/66 Dementia Research Group studies in Latin America, India, and China: A population-based cohort study

Martin J. Prince[1,2*], Daisy Acosta[3], Mariella Guerra[4,5], Yueqin Huang[6], K. S. Jacob[7], Ivonne Z. Jimenez-Velazquez[8], A. T. Jotheeswaran[9], Juan J. Llibre Rodriguez[10], Aquiles Salas[11,12], Ana Luisa Sosa[13], Isaac Acosta[13], Rosie Mayston[1,14], Zhaorui Liu[6], Jorge J. Llibre-Guerra[15], A. Matthew Prina[1,2], Adolfo Valhuerdi[16]

Timed Up and Go as a predictor of mortality in older Indian patients with cancer: An observational study

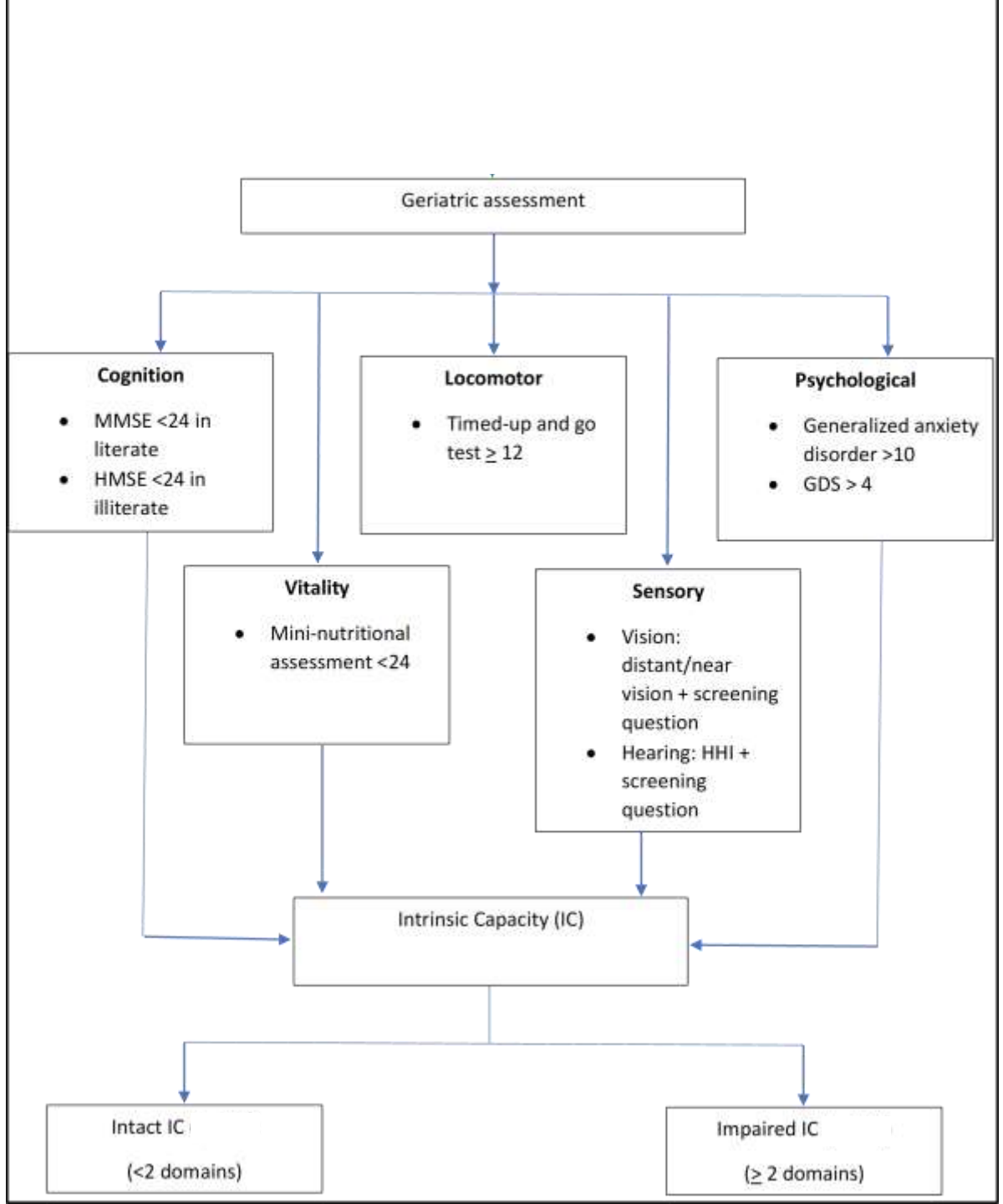
Abhijith Rajaram Rao, Sharath Kumar[1], Ratan Dhekale, Jyoti Krishnamurthy, Sarika Mahajan[2], Anuradha Daptardar[2], Anant Ramaswamy, Vanita Noronha, Vikram Gota[1], Shripad Banavali, Kumar Prabhash

Departments of Medical Oncology and [2]Physiotherapy, Tata Memorial Hospital, Mumbai, Maharashtra, [1]Department of Clinical Pharmacology, Advanced Centre for Treatment Research and Education in Cancer, Mumbai, Maharashtra, India

Published in final edited form as:
J Clin Oncol. 2002 August 1; 20(15): 3302–3316.

Nutrition and Survival After the Diagnosis of Breast Cancer : A Review of the Evidence

Cheryl L. Rock and **Wendy Demark-Wahnefried**
From the Department of Family and Preventive Medicine, University of California, San Diego, La Jolla, CA, and Department of Surgery, Duke University Medical Center, Durham, NC.

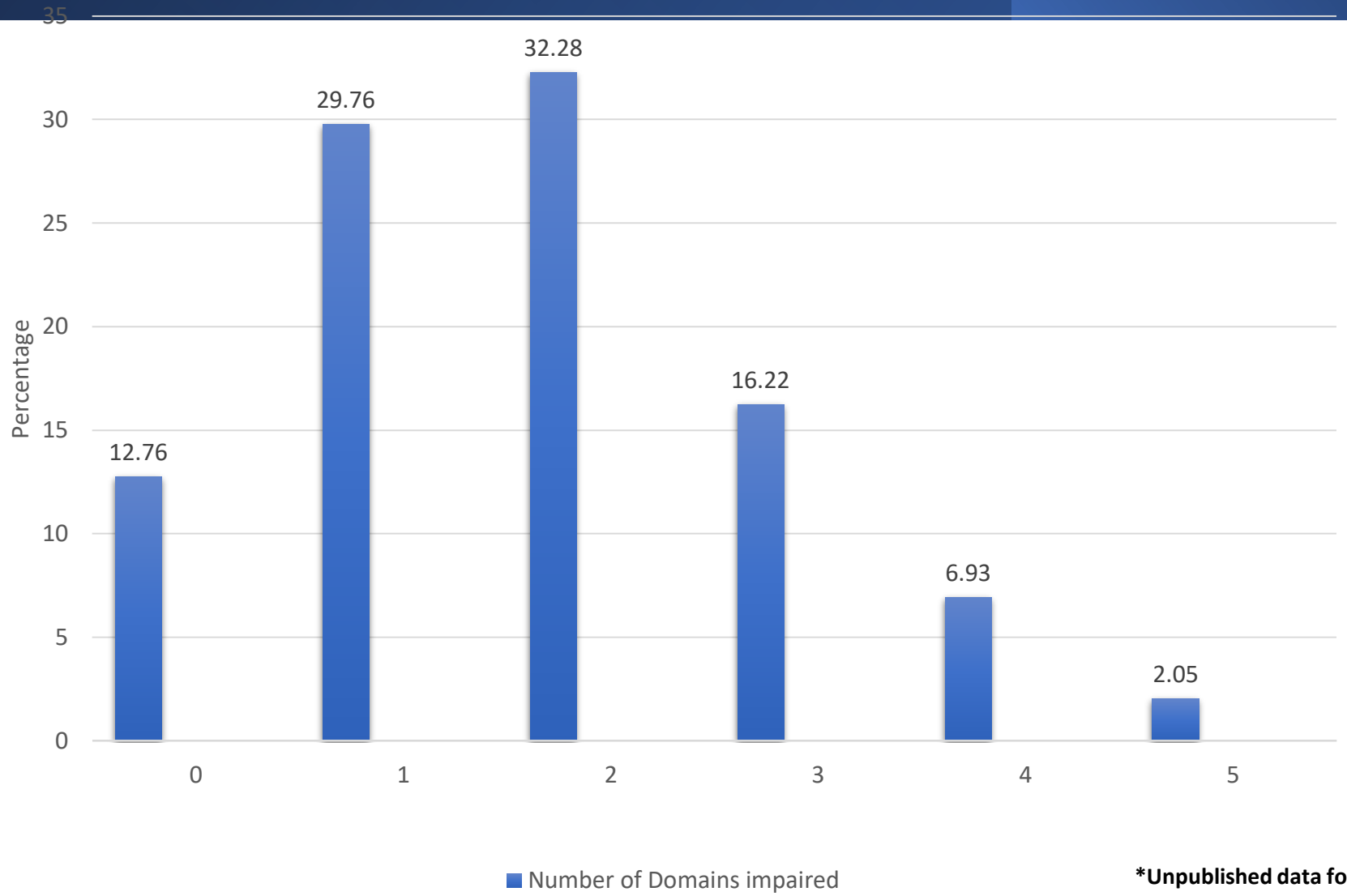

Geriatric assessment
Cognition
MMSE <24 in literate
HMSE <24 in illiterate
Locomotor
Timed-up and go test ≥ 12
Psychological
Generalized anxiety disorder >10
GDS > 4
Vitality
Mini-nutritional assessment <24
Sensory
Vision: distant/near vision + screening question
Hearing: HHI + screening question
Intrinsic Capacity (IC)
Intact IC
(<2 domains)
Impaired IC
(≥ 2 domains)

IC in older in older patients with cancer

- 635 patients, age 60 years and above
- Median age: 68 years, 74.3% Male
- Impaired IC: impairment in 2 or more domains
  - 365 (57.5%) patients
  - Poor functionality
    - ADL (31.8% vs 8.5%)
    - IADL (44.4% vs 12.9%)
  - Frail (44.9% vs 7.8%)

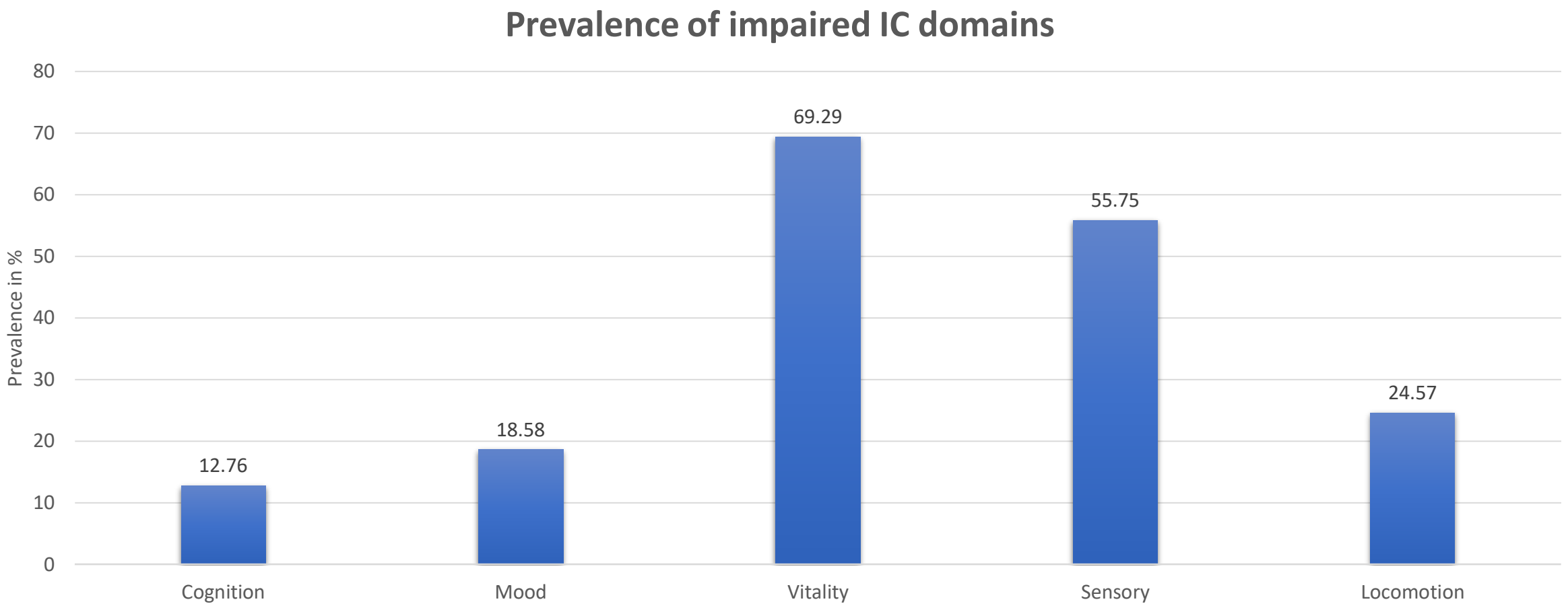
***Unpublished data form our geriatric oncology clinic**

Number of domains impaired



*Unpublished data form our geriatric oncology clinic

IC domains impaired



***Unpublished data form our geriatric oncology clinic**

Six Actions

Improve	Improve musculoskeletal function, mobility and vitality
Maintain	Maintain older adult capacity to see and hear
Prevent	Prevent cognitive impairment and promote psychological well being
Manage	Manage age related condition such as urinary incontinence
Prevent	Prevent falls
Support	Support caregivers

Summary

- GA is a useful tool to identify vulnerable older patients with cancer
- Functional ability: combination of intrinsic capacity and environment
- Five domains of IC: Locomotion, sensory, vitality, cognition, psychological capacity
- Goal
  - Screen for deficits in individual domains
  - Improve functional ability

Thank you