Clinical Examination and Comprehensive Geriatric Assessment (CGA) in Older Adults

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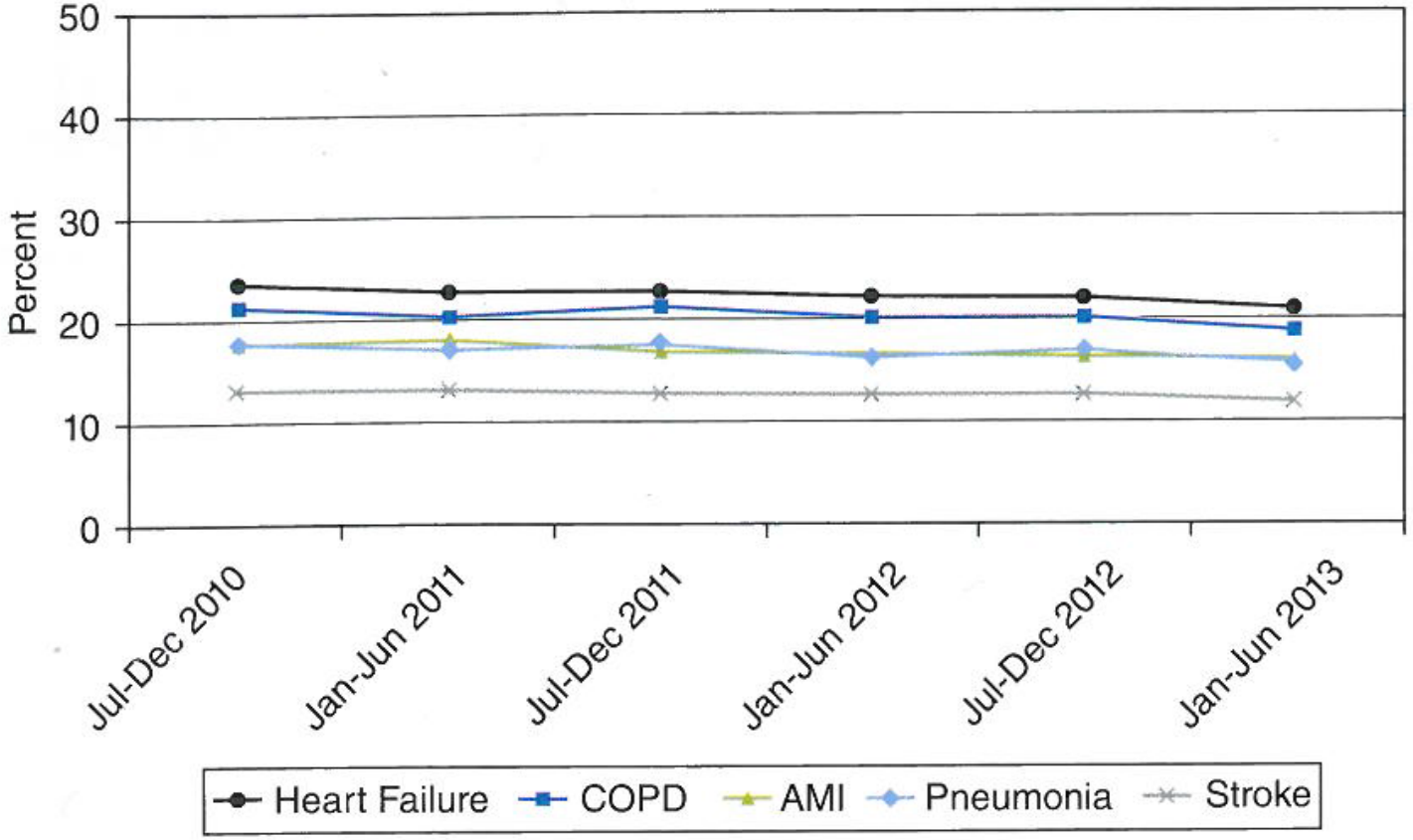
Percentage of office visits by selected medical conditions

	Age 45-64 years	Age 65-74 years	Age 75 + years
Hypertension	32,5	46,8	52,7
Arthritis	17,3	21,7	23,8
Diabetes	13,9	21,3	19,7
Depression	12,2	9,4	7,7
Obesity	8,8	8,0	3,6
Chronic obstructive pulmonary disease	3,7	7,4	8,0
Ischemic heart disease	3,4	7,3	9,4
Congestive heart failure	1,1	3,2	5,8

Centers for Disease Control and Prevention

Data from Centers for Medicaire and Medicaid Services 2014

The five major causes of non-programmed re-hospitalizations occurring within 30 days after hospitalization in 65+ people



Key: COPD = chronic obstructive pulmonary disease; AMI = acute myocardial infarction.

Denominator: Expected number of readmissions for Medicare fee-for-service patients age 65 years and over for each disease type given the hospital's case mix.

Data from Centers for Medicaire and Medicaid Services 2014

Seven causes that explain 30% (about 150 billion dollars) of all expenses for non-programmed re-hospitalisations occurring within 30 days after hospitalisation

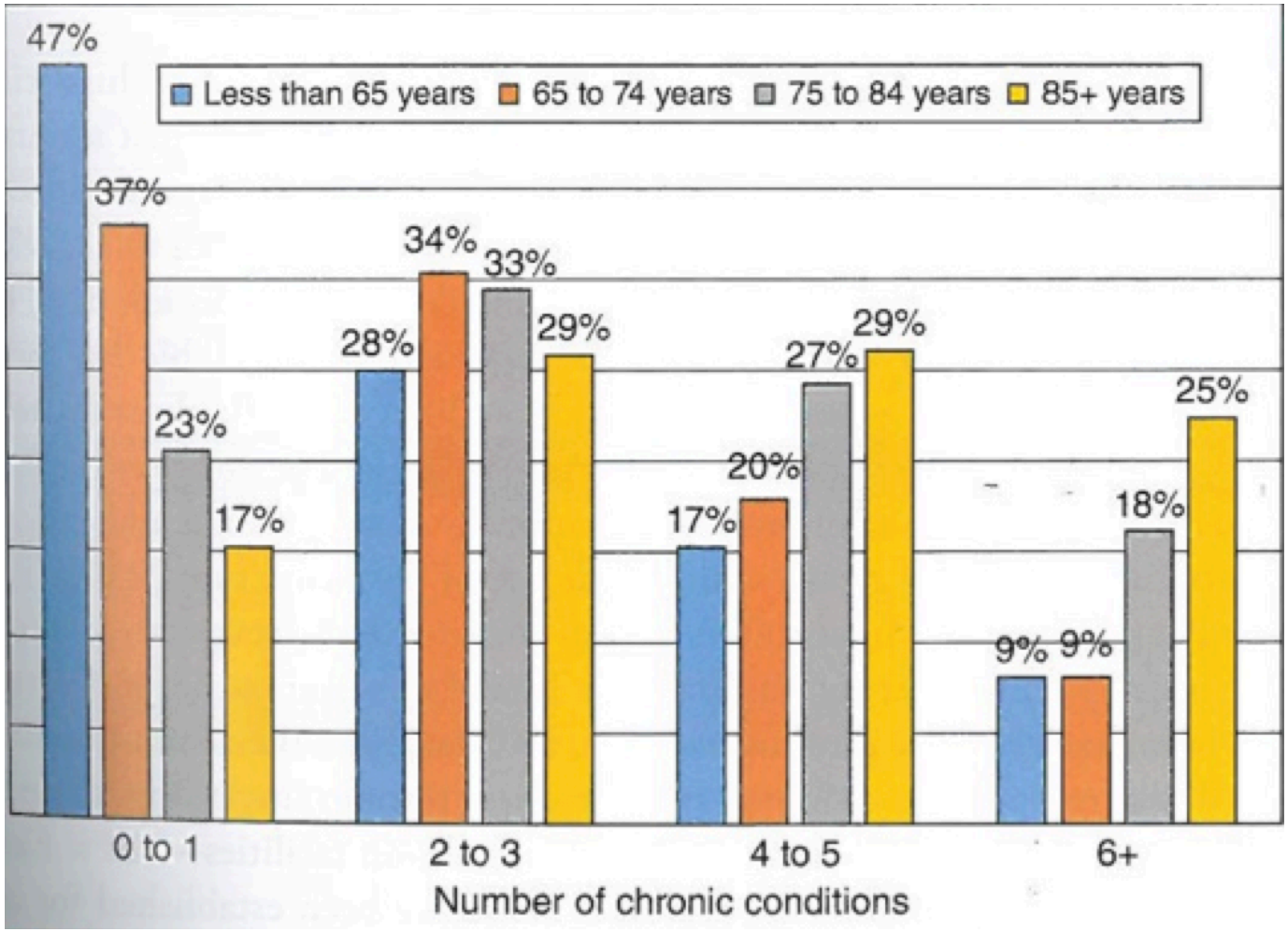
1. Heart failure
2. Chronic obstructive pulmonary disease
3. Pneumonia
4. Acute myocardial infarction
5. Coronary artery bypass graft
6. Percutaneous coronary angioplasty
7. Other vascular diseases

Changes in most common causes of death, all ages and those 65 years and older (rates per 100.000 people)

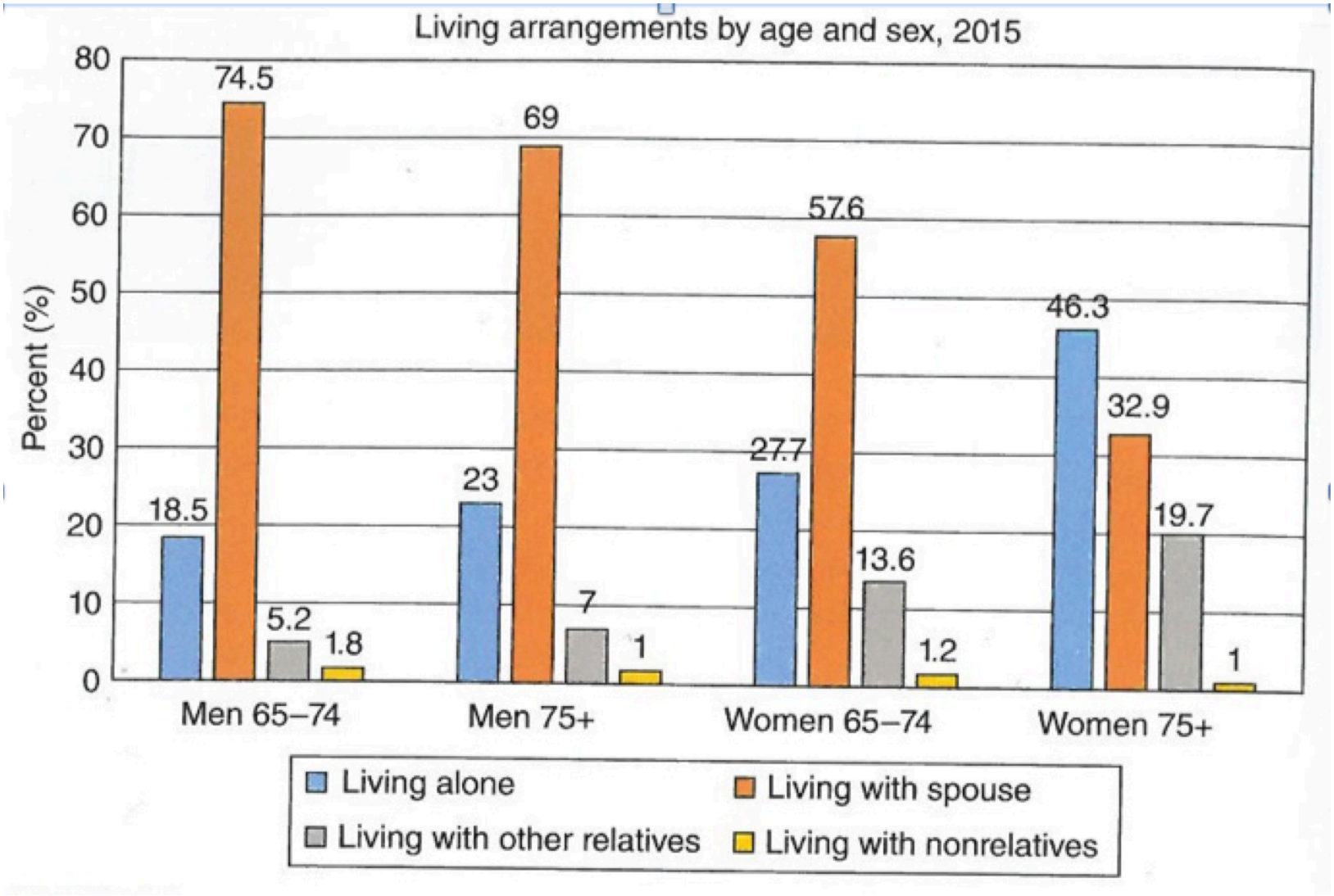
	All ages				Age 65 +	
	1900	Rank	2014	Rank	2014	Rank
Diseases of heart	13,8	4	193	1	**1060**	**1**
Malignant neoplasms	6,4	8	185	2	896	2
Cerebrovascular diseaes	10,7	5	41	5	245	4
Chronic respiratory diseases	4,5	9	47	3	270	3
Influenza and pneumonia	22,9	1	18	8	97	8
Diabetes mellitus	1,1		24	7	117	6
Alzheimer disease			267	6	200	5
Nephritis, and nephrosis	8,9	6	15	9	86	9
Accidents	7,2	7	41	4	105	7

Anderson and Smith 2005; 2014 data: National Vital Statistics system, National Center for Health Statistics. CDC

Number of chronic conditions in different age groups



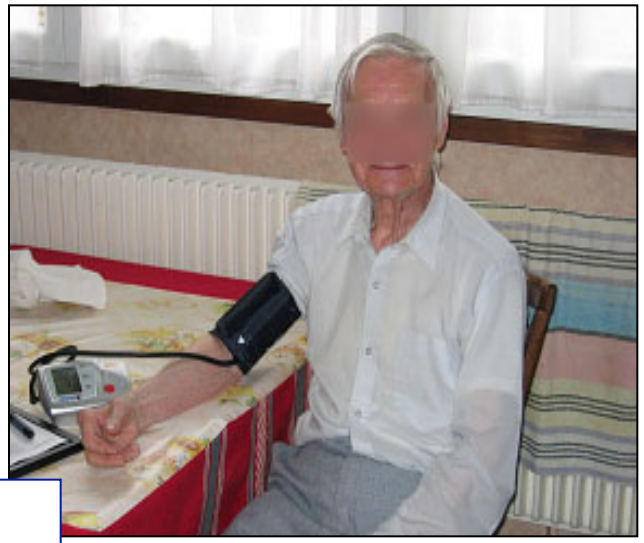
Medicare beneficiaries

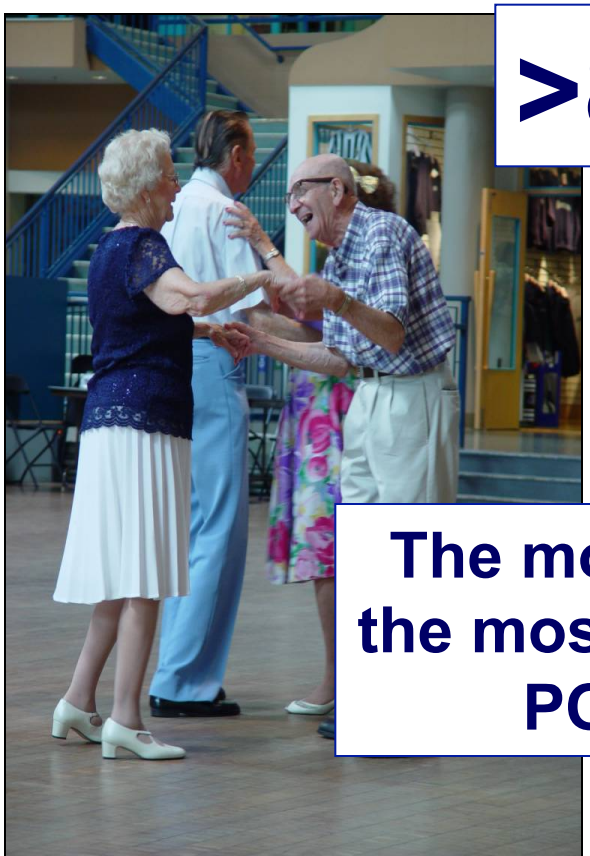


Current population survey

Main aspects concerning the health, diseases, autonomy and living conditions in the older adults

- Causes of death: **CVD-Cancer-Strokes-COPD**
- Causes of office visits: **Hypertension- Arthritis – Diabetes**
- Causes of <1month re-hospitalisation: **Heart Failure- COPD-AMI**
- Number of comorbidities: **>85 years, more than 4**
- Loss of autonomy: **mainly after 85 y.o**
- Living condition: **women live alone after 75 yo**
- Institutionalization after 80**: <20%**



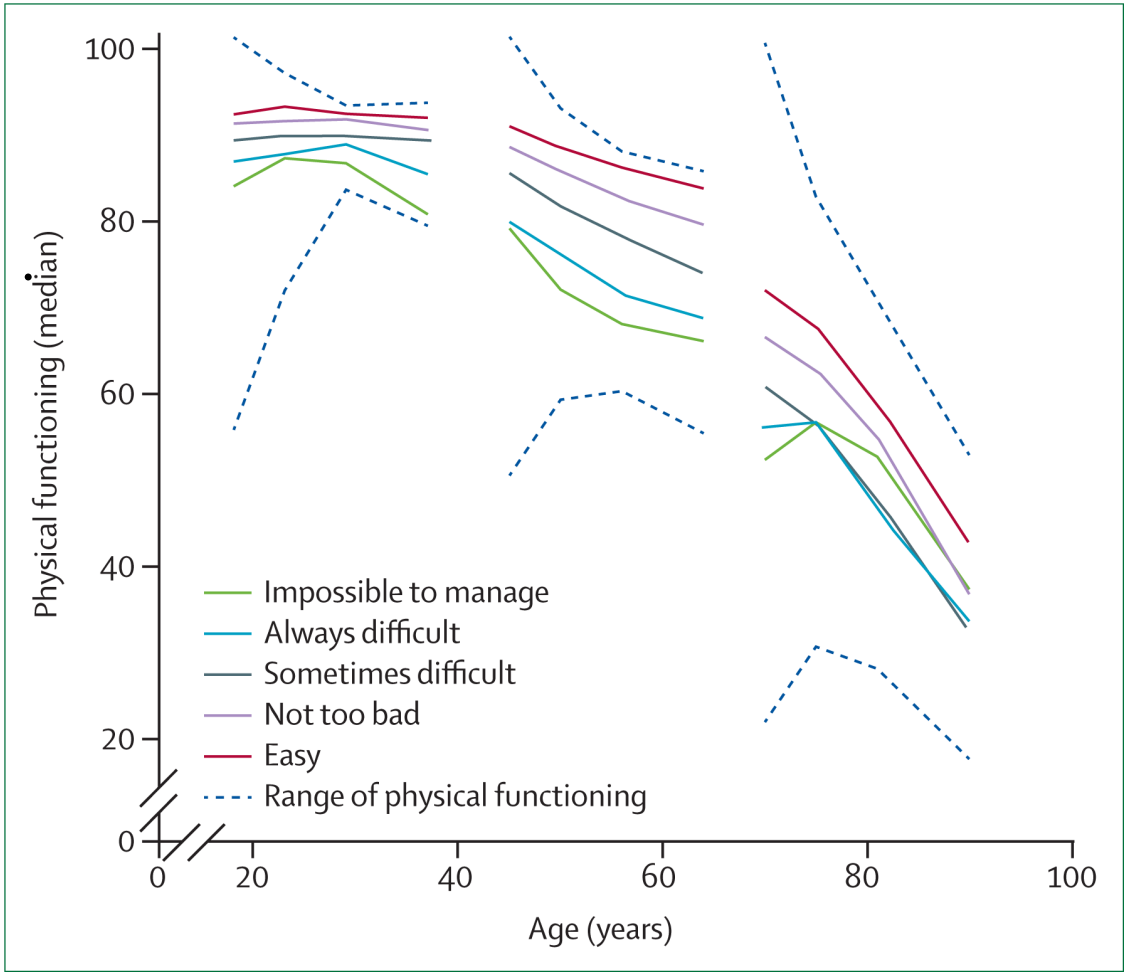


>80 years

The most growing and the most heterogeneous POPULATION

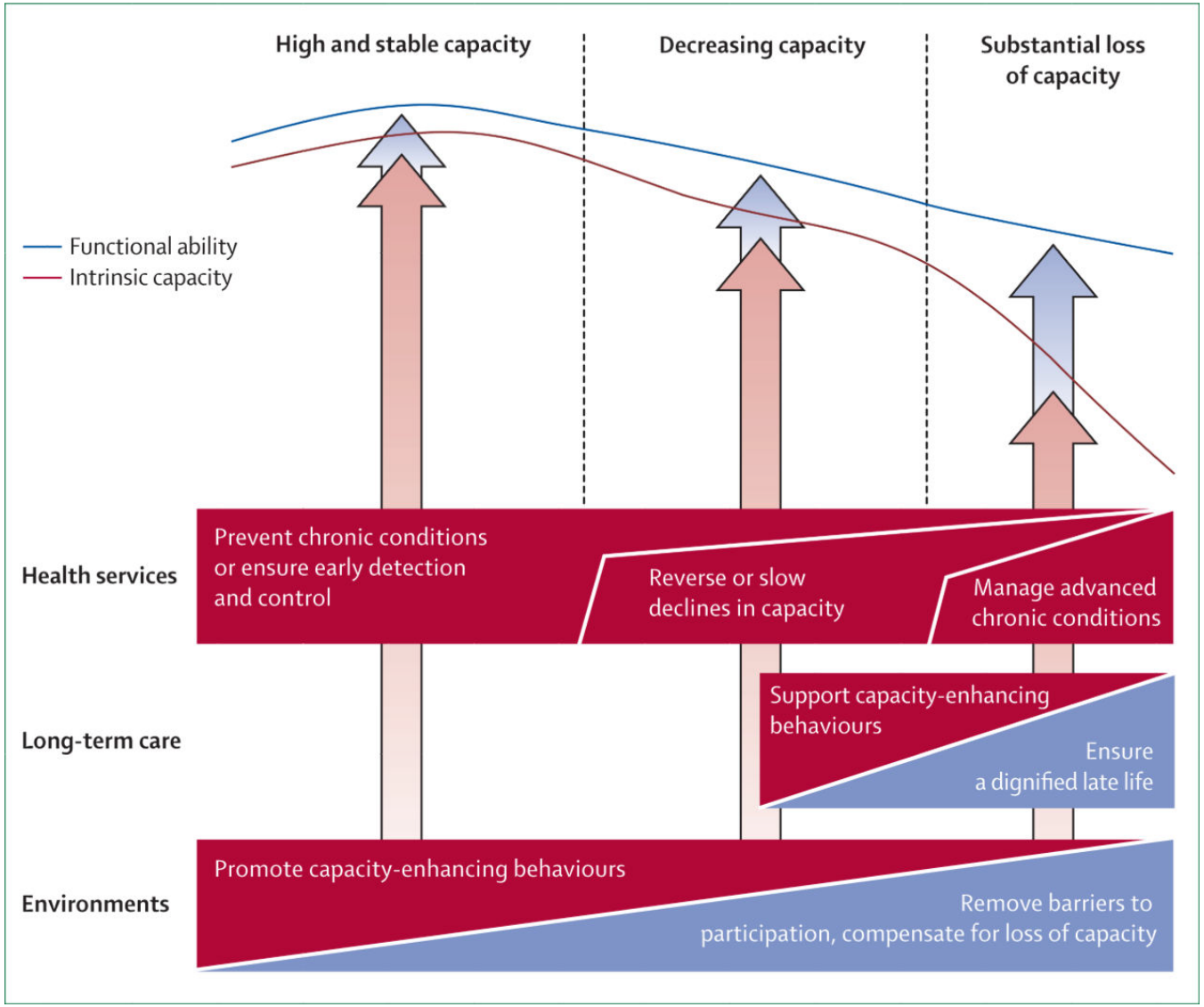
Physical functioning across the life course, stratified by ability to manage on current income. The higher the income, the higher the early-life peak in average physical functioning and this disparity tends to persist across the whole life course

Dashed lines show range between the median of top and bottom quintiles of physical functioning



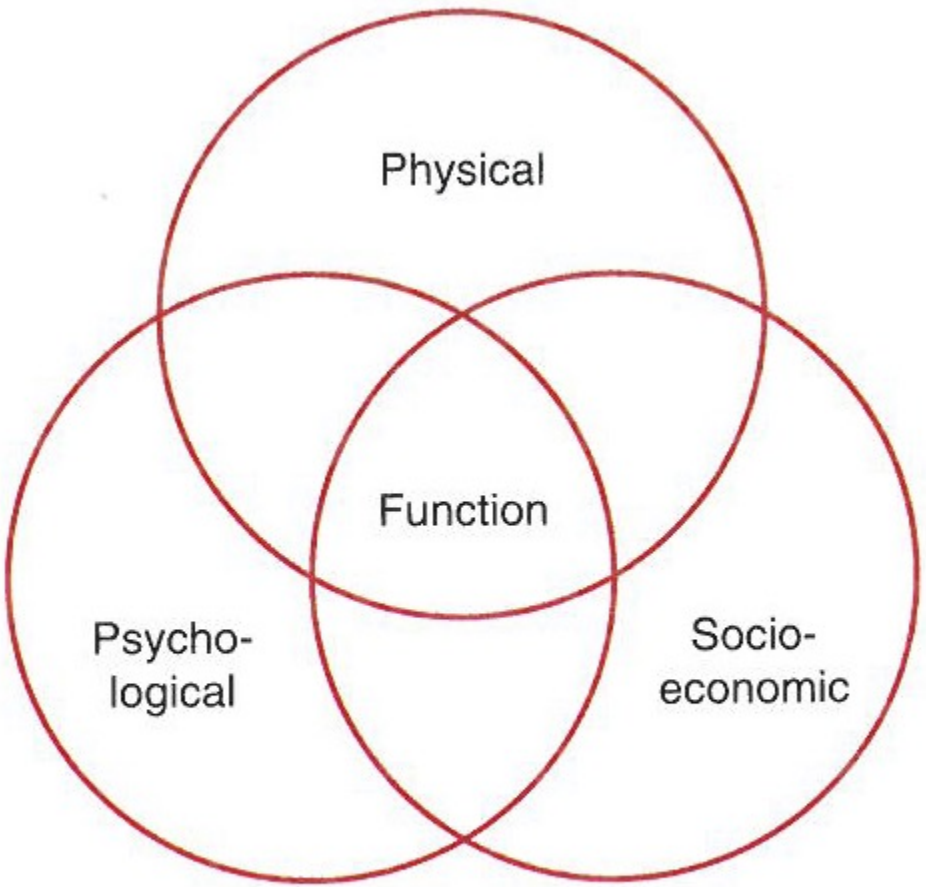
Beard J. et al: Lancet. 2016; 387: 2145-2154

A public health framework for healthy ageing: Three different subpopulations of older subjects according to their capacities



Beard J. et al: Lancet. 2016; 387: 2145-2154

COMPONENTS OF ASSESSMENT IN OLDER PEOPLE



Domains of Comprehensive Geriatric Assessment

- Medical
- Functional
  - Physical
  - Social
  - Cognitive
  - Affective
- Autonomy
- Social Support
- Environmental
- Quality of life

Examining and evaluating the Geriatric patient

Examining and evaluating the Geriatric patient

A- Two major specificities related to the:

- **Functional and cognitive decline**
- **Presence of multi-morbidity and poly-medication**

B- Practical consequences

- Increased duration of the medical examination

- Information obtained from (and given to) the patient, the family and the caregivers

Important aspects of the patients' History

The slides that follow concerning the main elements of the clinical examination of the older subjetcs are adapted from the book:

Essential of

Clinical Geriatrics

Eighth Edition

by

R. Cane, J. Ouslander, B. Resnick, M. Malone

Mc Graw Hill Education

2018

Social context and History

- Living arrangements
- Relationships with family and friends
- Expectations of family or other caregivers
- Economic status
- Abilities to perform activities of daily living (ADLs)
- Social activities and hobbies
- Physical activities
- Mode of transportation
- Advance directives

Past medical History: General informations

- Previous surgical procedures
- Major illness and hospitalizations
- Previous transfusions

- Immunization status

-Influenza, pneumococcus (zoster)

- Preventive health measures

- Mammography

- Papanicolaou (Pap) smear

- Colonoscopy

- Estrogen replacement

- Previous allergies
- Current medication regimen
- Compliance to the treatment
- Perceived beneficial or adverse drug effects

Patients' History

General symptoms that may indicate treatable underlying disease:

- fatigue,
- anorexia,
- weight loss,
- insomnia,
- recent change in functional status,
- recent decrease in activities.

Geriatric History

Key symptoms in each organ system:

System	Key symptoms
Respiratory	Increasing dyspnea Persistent cough
Cardiovascular	Orthopnea Edema Angina Claudication Palpitations Dizziness Syncope
Gastrointestinal	Difficulty chewing Dysphagia Abdominal pain Change in bowel habit

Key symptoms in each organ system:

System	Key symptoms
Genitourinary	Frequency Urgency Nocturia Hesitancy, intermittent stream Incontinence Hematuria Vaginal bleeding
Musculoskeleal	Focal or diffuse pain Focal or diffuse weakness Muscular force

Key symptoms in each organ system:

System	Key symptoms
Neurological/ Sensorial	Memory and other cognitive symptoms Visual disturbances (transient or progressive) Progressive hearing loss Gait and walk disturbances Falls Focal symptoms
Psychological	Depression Anxiety and/or agitation Confusion

Screening questions and recommendations for further assessment

		Screening questions	Further geriatric assessment
Social	Social support	Do you live alone ? Are you looking for someone to help with your daily activities Are you a caregiver for someone ?	Consider referral to a social worker or a local area agency on aging if available
	Elder abuse	Do you ever feel unsafe where you live ? Has anyone ever threatened or hurt you ? Has anyone been taking your money without your permission ?	Consider referral to a social worker and/or adult protective services
	Advance Directives	Have you thought about the type of care you would want if you become seriously ill ?	Have an advance care planning discussion

Screening questions and recommendations for further assessment

		Screening questions	Further geriatric assessment
Functional	Functional status	Do you need assistance with shopping or finances ? Do you need assistance with bathing or taking a shower ?	**Consider ADL and IADL assessment**
	Driving	Do you still drive ? If yes : - While driving, have you had an accident in the pas 6 months ? - Are any family members concerned about your driving ?	Consider vision testing Consider a formal driving evaluation
	Vision	Do you have trouble seeing, reading, or watching TV ? (with glasses, if used) ?	Consider vision testing Consider referral for eye exam
	Hearing	Do you have difficulty hearing conversation in a quiet room (with aide if used ?)	Check for cerumen in ear canals and remove if impacted. Consider audiology referral

Geriatric screening questions and recommendations for further assessment

		Screening questions	Further geriatric assessment
Geriatric syndromes	Poly-pharmacy	How many routine medications you take? Do you understand the reason for each of your medications ?	Perform a medication reconciliation Consider reducing doses, stopping drugs, adherence aides, consultation with pharmacist
	Fall risk	Have you fallen in the past year ? Are you afraid of falling ? Do you have trouble climbing stairs ? Do you have trouble getting up from a chair ?	Take the "Get Up and Go" and "5-time chair" or" SPPB" tests Consider physical therapy evaluation Consider home safety assessment
	Inconti-nence	Do you have ay trouble with your bladder ? Do you lose urine or stool when you do not want to ? Do you ever wear pads or adults diapers ?	If symptoms are bothersome consider specific questionnaires for men and women Consider continence evaluation

Screening questions and recommendations for further assessment

		Screening questions	Further geriatric assessment
Geriatric syndromes	Weight loss	Have you lost > 4.5 kg over the last 6 months without intending to do so ?	Take the Mini Nutritional Assessment (MNA) Consider evaluation by a dietician/nutritionist
	Sleep disturbance	Do you often feel sleepy during the day ? Do you have difficulty falling asleep at night ? Do you know if you snore loudly ?	Consider referral for sleep evaluation

Geriatric screening questions and recommendations for further assessment

		Screening questions	Further geriatric assessment for positive responses to screening
Cognition and affect	Pain	Are you experiencing pain or discomfort ?	Consider pain assessment using a standard scale
	Depression	Do you often feel sad or depressed ? Have you lost pleasure in doing things over the past few months ?	Perform geriatric depression scale (GDS) Consider screening for suicide risk Consider psychology or psychiatry evaluation
	Cognitive impairment	Do you or any family or friends think you have a problem with your memory ? (in hospitalized patients the confusion assessment [CAM] should be used first to screen for delirium)	Perform Mini Cog or MIS of 5-word Dubois and if necessary test with a standard tool (eg, MMSE, MOCA, clock) Consider neuropsychological testing

Important aspects of the Physical examination

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
Vital signs	
Elevated blood pressure (BP)	Increased risk for cardiovascular morbidity; therapy should be considered if repeated measurements are high
Decreased BP(SBP<120mmHg)	Check for malnutrition, dehydration, too many antihypert. drugs, other degenerative diseases
Postural change in BP	May be asymptomatic and occur in the absence of volume depletion Aging changes, deconditioning, and drugs may play a role Can be exaggerated after meals Can be worsened and become symptomatic with antihypertensive, vasodilator and tricyclic antidepressant therapy

Common physical findings and their potential significance in geriatrics	
Physical findings	**Potential signifiance**
Vital signs	
Irregular pulse	Arrhythmias are relatively common in otherwise asymptomatic elderly ; seldom need specific evaluation or treatment,
Tachypnea	Baseline rate should be accurately recorded to help assess future complaints (such as dyspnea) or conditions (such as pneumonia or heart failure)
Weight changes	Weight gain should prompt search for edema or ascites Gradual loss of small amounts of weight common; losses in excess of 5 % if usual body weight over 12 months or less should prompt search of underlying disease

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
General appearance and behavior	
Poor personal grooming and hygiene (eg, poorly shaven, unkempt hair, soiled clothing)	Can be signs of poor overall function, caregiver's neglect and/or depression ; often indicates a need for intervention
Slow throught processes and speech	Usually represents and aging change ; Parkinson disease, depression, vascular encephalopathy, neurodegenerative diseases can also cause these signs
Ulcerations	Lower extremity vascular and neuropathic ulcers common especially in diabetics and people with venous stasis. Pressure ulcers common and easily overlooked in immobile patients
Diminished turgor	Often results from atrophy of subcutaneous tissues rather than volume depletion ; when dehydration suspected, skin turgor over chest and abdomen most reliable

Common physical findings and their potential significance in geriatrics	
Physical findings	**Potential signifiance**
Ears	
Diminished hearing	High-frequency hearing loss common ; patients with difficulty hearing normal conversation or a whispered phrase next to the ear should be evaluated further Portable audioscopes can be hepful in screening for impairment
Eyes	
Decreased visual acuity (often despite corrective lenses)	May have multiple causes, all patients should have thorough optometric or ophthalmologic examination Hemianopsia is easily overlooked and can usually be ruled out by simple confrontation testing
Cataracts and other abnormalities	Fundoscopic examination often difficult and limited ; if retinal pathology suspected, thorough ophthalmologic examination necessary

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
Mouth	
Missing teeth	Dentures often present ; they should be removed to check for evidence of poor fit and other pathology in oral cavity
Oral cavity	Mouth examination for lesions, mycosis, xerostomia Area under the tongue is a common site for early malignancies
Skin	
Multiple lesions	Actinic keratoses and basal cell carinomas common ; most other lesions benig
Chest	
Abnormal lung sounds	Crackles can be heard in the absence of pulmonary disease and heart failure ; often indicate atelectasis

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
Cardiovascular	
Irregular rhythms	See vital signs at the beginning of the table
Systolic murmurs	Common and most often benign ; clinical history and bedside maneuvers can help to differentiate those needing further evaluation Carotid bruits may need further evaluation
Vascular bruits	Femoral bruits often present in patients with symptomatic peripheral vascular disease
Diminished distal pulses	Presence or absence should be recorded as this information may be diagnostically useful at a later time (eg, if symptoms of claudication or an embolism develop)

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
Abdomen	
Prominent aortic pulsation	Suspected abdominal aneurysms should be evaluated by ultrasound
Genitourinary	
Atrophy	Testicular atrophy normal ; atrophic vaginal tissues may cause symptoms (such as dyspareunia and dysuria) and treatment may be beneficial
Pelvic prolapse (cystocele, rectocele)	Common and may be unrelated to symptoms ; gynecologic evaluation helpful if patient has bothersome, potentially related symptoms.

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
Extremities	
Peri-articular pain	Can result from a variety of causes and is not always the result of degenerative joint disease ; each area of pain should be carefully evaluated and treated
Limited range of motion	Often caused by pain resulting from active inflammation, scarring from old injury, or neurological disease ; if limitations impair function, a rehabilitation therapist could be consulted
Edema	Can result from venous insufficiency and/or heart failure ; mild edema often a cosmetic problem ; treatment necessary if impairing ambulation, contributing to nocturia, predisposing to skin breakdown or causing discomfort

Common physical findings and their potential significance in geriatrics

Physical findings	Potential signifiance
Neurological	
Abnormal cognitive status	Distinguish between delirium, depression, dementia If neurocognitive disease make a diagnosis in order to choose preventive measurements, therapy, support, define prognosis. Announce the diagnosis to the patient
Weakness	Arm drift may be the only sign of residual weakness from a stroke. Proximal muscle weakness (inability to get out of chair) should be further evaluated ; physical therapy may be appropriate

Additional tests in order to complete the Comprehensive Geriatric Assessment (CGA)

-Autonomy evaluation ADL-IADL

-Gait and walk speed and muscular force

-Nutrition

-Cognitive functions

-Psychological status

-Evaluation of physical and social activities

-Drug Prescription reevaluation

-Synthesis, elaboration of personalized care plan

Autonomy status

1- Activities of daily living (ADL, Katz Index)

2- Instrumental Activities of daily living (IADL, Lawton scale

Activities of daily living (ADL, Katz Index)

Bathing
Dressing
Toileting
Transfer
Continence
Feeding
Standing up from bed
Climbing

Independent
Assistance
Dependent

Katz S et al. Studies of Illness in the Aged: The Index of ADL; 1963.

Instrumental Activities of daily living (IADL, Lawton scale)

Telephone
Traveling
Shopping
Preparing
meals
Housework
Medication
Money

Independent
Assistance
Dependent

The Oars Methodology: Multidimensional Functional Assessment Questionnaire; 1978.

Walk/balance tests and risk of falls

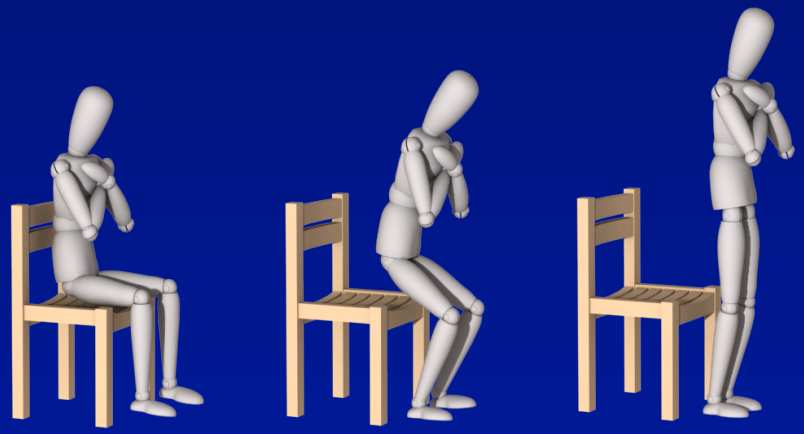
-Timed-up and go test 3 meters

Number of seconds necessary to accomplish the task
If >20 sec: high risk for falls
If 12-20 sec : moderate risk for falls

- Raise from the chair 5 times
without helping from the arms

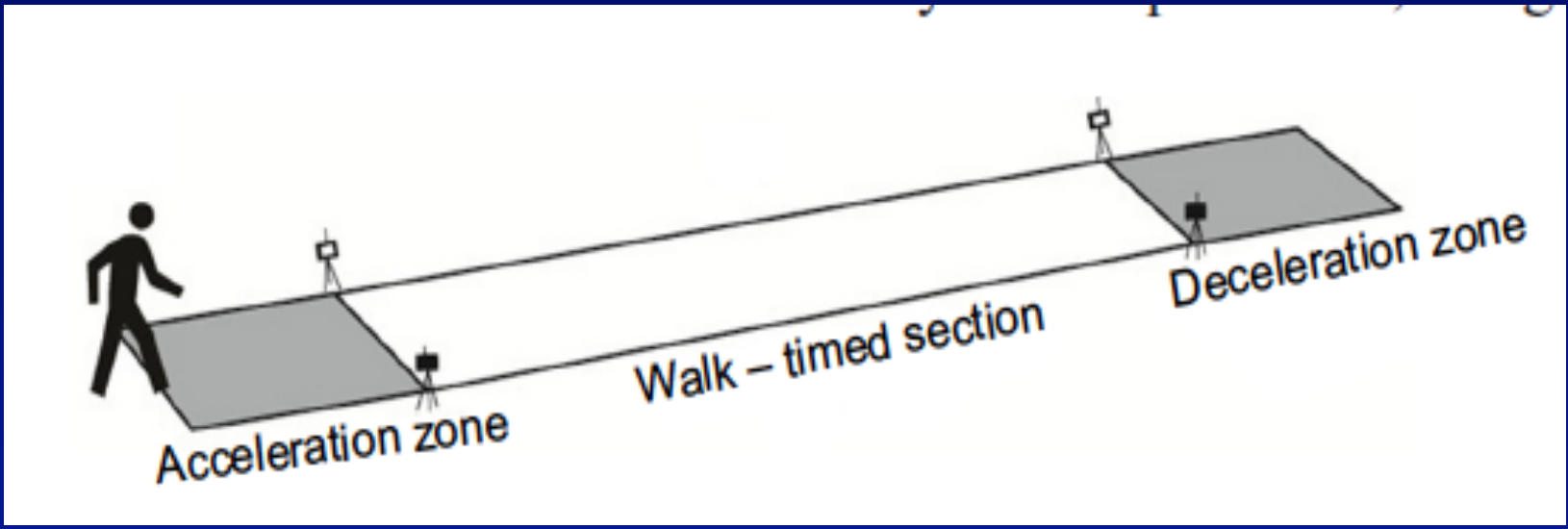
*Number of seconds necessary to accomplish the ta**sk***
If >15 sec: high risk for falls

X 5 times



<15 sec “Normal”

4-meter walk speed



Speed:
>1 m/sec Normal
< 0.80 m/sec Low speed
0.80-1.00 “zone grise”

SPBB

Short Physical Performance Battery

1. Balance Tests

Side-by-Side Stand
Feet together side-by-side for 10 sec

< 10 sec (0 pt)

10 sec (1 pt)

Semi-Tandem Stand
Heel of one foot against side of big toe of the other for 10 sec

< 10 sec (+0 pt)

10 sec (+1 pt)

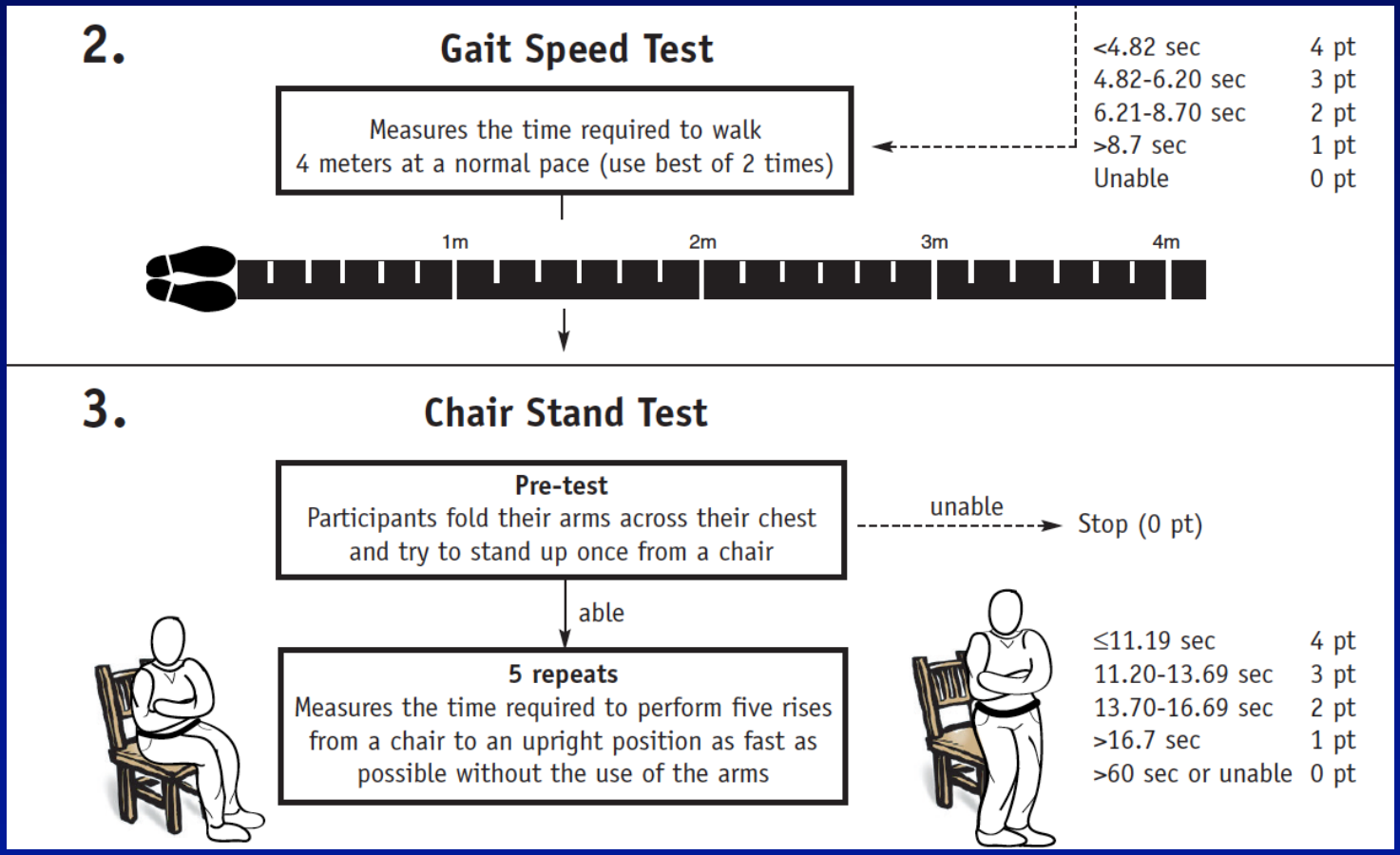
Tandem Stand
Feet aligned heel to toe for 10 sec

10 sec (+2 pt)
3-9.99 sec (+1 pt)
<3 sec (+0 pt)

Go to 4-Meter Gait Speed Test

Go to 4-Meter Gait Speed Test

SPBB



0-6: Low score high risk of fall
7-9: Medium score
10-12: High performance; low risk of fall

Body composition and muscular force

- Height, Weight,
- Waist, calf circumference
- Muscular force
  (Dynamometer hand grip)

NUTRITIONAL ASSESSEMENT with MNA

Nutritional state	MNA short form scale for nutritional problem detection **If score ≤ 11 in short form, then application of the full questionnaire.** MNA extended version **To be applied only if detection score ≤11**

Mini Nutritional Assessment
MNA®

Nestlé Nutrition Institute

Last name: First name:

Sex: Age: Weight, kg: Height, cm: Date:

Complete the screen by filling in the boxes with the appropriate numbers.
Add the numbers for the screen. If score is 11 or less, continue with the assessment to gain a Malnutrition Indicator Score.

Screening

A Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?
0 = severe decrease in food intake
1 = moderate decrease in food intake
2 = no decrease in food intake ☐

B Weight loss during the last 3 months
0 = weight loss greater than 3kg (6.6lbs)
1 = does not know
2 = weight loss between 1 and 3kg (2.2 and 6.6 lbs)
3 = no weight loss ☐

C Mobility
0 = bed or chair bound
1 = able to get out of bed / chair but does not go out
2 = goes out ☐

D Has suffered psychological stress or acute disease in the past 3 months?
0 = yes 2 = no ☐

E Neuropsychological problems
0 = severe dementia or depression
1 = mild dementia
2 = no psychological problems ☐

F Body Mass Index (BMI) = weight in kg / (height in m)²
0 = BMI less than 19
1 = BMI 19 to less than 21
2 = BMI 21 to less than 23
3 = BMI 23 or greater ☐

Screening score (subtotal max. 14 points) ☐☐
12-14 points: Normal nutritional status
8-11 points: At risk of malnutrition
0-7 points: Malnourished
For a more in-depth assessment, continue with questions G-R

Assessment

G Lives independently (not in nursing home or hospital)
1 = yes 0 = no ☐

H Takes more than 3 prescription drugs per day
0 = yes 1 = no ☐

I Pressure sores or skin ulcers
0 = yes 1 = no ☐

J How many full meals does the patient eat daily?
0 = 1 meal
1 = 2 meals
2 = 3 meals ☐

K Selected consumption markers for protein intake
- At least one serving of dairy products (milk, cheese, yoghurt) per day yes ☐ no ☐
- Two or more servings of legumes or eggs per week yes ☐ no ☐
- Meat, fish or poultry every day yes ☐ no ☐

0.0 = if 0 or 1 yes
0.5 = if 2 yes
1.0 = if 3 yes ☐,☐

L Consumes two or more servings of fruit or vegetables per day?
0 = no 1 = yes ☐

M How much fluid (water, juice, coffee, tea, milk...) is consumed per day?
0.0 = less than 3 cups
0.5 = 3 to 5 cups
1.0 = more than 5 cups ☐,☐

N Mode of feeding
0 = unable to eat without assistance
1 = self-fed with some difficulty
2 = self-fed without any problem ☐

O Self view of nutritional status
0 = views self as being malnourished
1 = is uncertain of nutritional state
2 = views self as having no nutritional problem ☐

P In comparison with other people of the same age, how does the patient consider his / her health status?
0.0 = not as good
0.5 = does not know
1.0 = as good
2.0 = better ☐,☐

Q Mid-arm circumference (MAC) in cm
0.0 = MAC less than 21
0.5 = MAC 21 to 22
1.0 = MAC greater than 22 ☐,☐

R Calf circumference (CC) in cm
0 = CC less than 31
1 = CC 31 or greater ☐

Assessment (max. 16 points) ☐☐,☐
Screening score ☐☐,☐
Total Assessment (max. 30 points) ☐☐,☐

Malnutrition Indicator Score

24 to 30 points	☐	Normal nutritional status
17 to 23.5 points	☐	At risk of malnutrition
Less than 17 points	☐	Malnourished

References
1. Vellas B, Villars H, Abellan G, *et al.* Overview of the MNA® - Its History and Challenges. *J Nutr Health Aging.* 2006; **10**:456-465.
2. Rubenstein LZ, Harker JO, Salva A, Guigoz Y, Vellas B. Screening for Undernutrition in Geriatric Practice: Developing the Short-Form Mini Nutritional Assessment (MNA-SF). *J. Geront.* 2001; **56A**: M366-377
3. Guigoz Y. The Mini-Nutritional Assessment (MNA®) Review of the Literature - What does it tell us? *J Nutr Health Aging.* 2006; **10**:466-487.

For more information: www.mna-elderly.com

Depression assessment

- Geriatric Depression Scale

Foley K Hosp Med, 1996

GERIATRIC DEPRESSION SCALE (GDS 15)

1. Are you basically satisfied with your life?
2. Have you dropped any of your activities?
3. Do you feel that your life is empty?
4. Do you often get bored?
5. Are you in good spirits most of the time?
6. Are you afraid that something bad is going to happen to you?
7. Do you feel happy most of the time?
8. Do you often feel helpless?

Yesavage JA. Clinical Memory Assessment of Older Adults. 1986.

GERIATRIC DEPRESSION SCALE (GDS 15)

9. Do you prefer to stay home at night, rather than go out and do new things?
10. Do you feel that you have more problems with memory than most.
11. Do you think it is wonderful to be alive now?
12. Do you feel pretty worthless the way you are now?
13. Do you feel full of energy?
14. Do you feel that your situation is hopeless?
15. Do you think that most persons are better off than you are?

Yesavage JA. Clinical Memory Assessment of Older Adults. 1986.

Depression

- 10% of >65 y/o with depressive symptoms
- If score >11: Strong probability for Depression

Foley K Hosp Med, 1996

Cognitive function screening

The Mini Mental State Examination (MMSE)

Folstein Mini-Mental State Exam		
I. **ORIENTATION** (Ask the following questions; correct = ☑)	**Record Each Answer:**	(Maximum Score = 10)
What is today's date?	Date (eg, May 21)	1 ☐
What is today's year?	Year	1 ☐
What is the month?	Month	1 ☐
What day is today?	Day (eg, Monday)	1 ☐
Can you also tell me what season it is?	Season	1 ☐
Can you also tell me the name of this hospital/clinic?	Hospital/Clinic	1 ☐
What floor are we on?	Floor	1 ☐
What city are we in?	City	1 ☐
What county are we in?	County	1 ☐
What state are we in?	State	1 ☐
II. IMMEDIATE RECALL	(correct = ☑)	(Maximum Score = 3)
Ask the subject if you may test his/her memory. Say "ball, "flag," "tree" clearly and slowly, about on second for each. Then ask the subject to repeat them. Check the box at right for each correct response. The first repetition determines the score. If he/she does not repeat all three correctly, keep saying them up to six tries until he/she can repeat them	Ball	1 ☐
	Flag	1 ☐
	Tree	1 ☐
		NUMBER OF TRIALS: _____
III. **ATTENTION AND CALCULATION**		
A. Counting Backwards Test	(Record each response, correct = ☑)	(Maximum Score = 5)
Ask the subject to begin with 100 and count backwards by 7. Record each response. Check one box at right for each correct response. Any response 7 or less than the previous response is a correct response. The score is the number of correct subtractions. For example, 93, 86, 80, 72, 65 is a score of 4; 93, 86, 78 70, 62, is 2; 92, 87, 78, 70, 65 is 0.	93	1 ☐
	86	1 ☐
	79	1 ☐
	72	1 ☐
	65	1 ☐

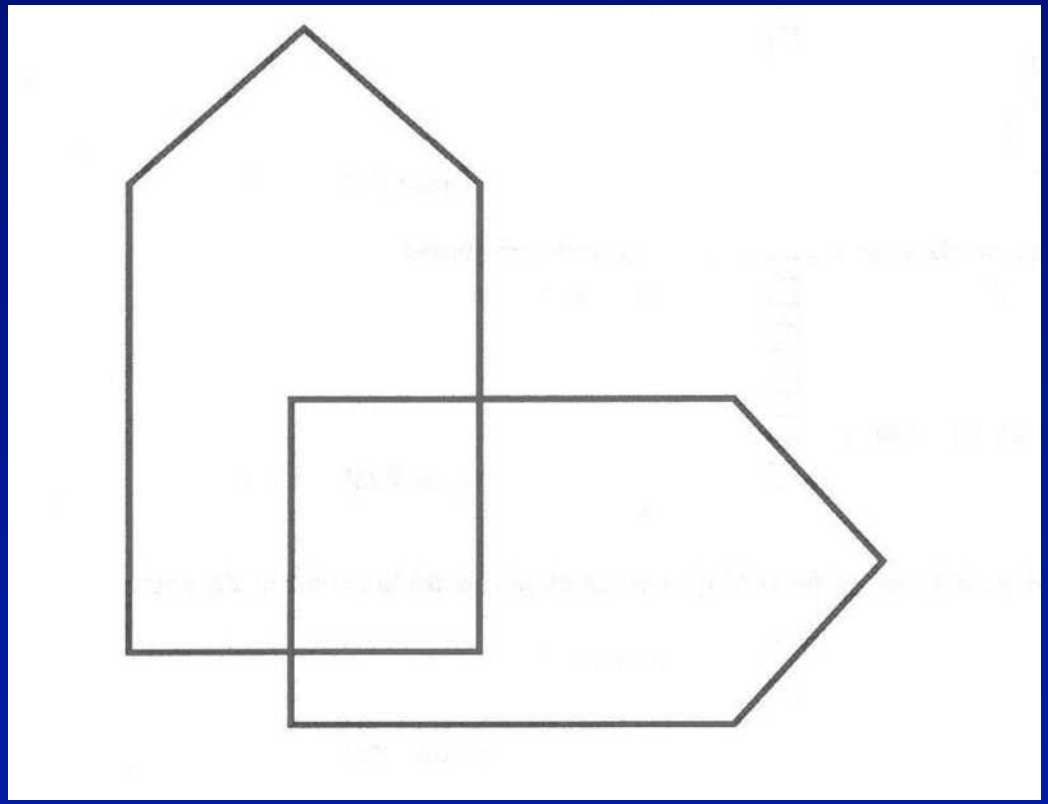
The Mini Mental State Examination (MMSE)

IV. **RECALL**	(correct = ☑)	(Maximum Score = 3)
Ask the subject to recall the three words you previously asked him/her to remember. Check the Box at right for each correct response.	Ball	1 ☐
	Flag	1 ☐
	Tree	1 ☐
V. Language	(correct = ☑)	(Maximum Score = 9)
Naming	Watch	1 ☐
Show the subject a wrist watch and ask him/her what it is. Repeat for a pencil.	Pencil	1 ☐
Repetition		
Ask the subject to repeat "No, ifs, ands, or buts."	Repetition	1 ☐
Three -Stage Command		
Establish the subject's dominant hand. Give the subject a sheet of blank paper and say, "Take the paper in your right/left hand, fold it in half and put it on the floor."	Takes paper in hand	1 ☐
	Folds paper in half	1 ☐
	Puts paper on floor	1 ☐
Reading		
Hold up the card that reads, "Close your eyes." So the subject can see it clearly. Ask him/her to read it and do what it says. Check the box at right only if he/she actually closes his/her eyes.	Closes eyes	1 ☐
Writing		
Give the subject a sheet of blank paper and ask him/her to write a sentence. It is to be written sponataneously. If the sentence contains a subject and a verb, and is sensible, check the box at right. Correct grammar and punctuation are not necessary.	Writes sentence	1 ☐
Copying		
Show the subject the drawing of the intersecting pentagons. Ask him/her to draw the pentagons (about one inch each side) on the paper provided. If ten angles are present and two intersect, check the box at right. Ignore tremor and rotation.	Copies pentagons	1 ☐

DERIVING THE TOTAL SCORE	
Add the number of correct responses. The maximum is 30.	TOTAL SCORE _____

The Mini Mental State Examination (MMSE)

CLOSE YOUR EYES



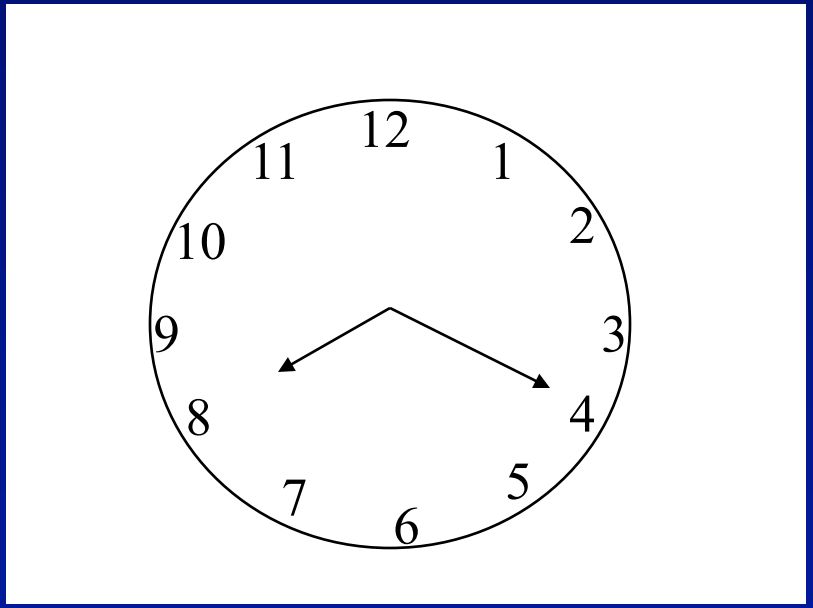
MMSE

- Normal = 30
- Much influenced by:
  - Education level*
  - Maternal language
  - Depression
  - Sensorial problems
  - Age

Screening: YES
Follow-up: YES
Diagnosis: NO

Clock Drawing Test Instructions

- Subjects told to
  - Draw a large circle
  - Fill in the numbers on a clock face
  - Set the hands at 8:20
- No time limit given
- Scoring (subjective):
  - 0 (normal)
  - 1 (mildly abnormal)
  - 2 (moderately abnormal)
  - 3 (severely abnormal)



Borson S. et al Int J Geriatr Psychiatry 2000;15:1021-1027

MEMORY IMPAIRMENT SCREEN (MIS)

Instructions for Administration

1. Show patient a sheet of paper with the 4 items to be recalled in 24-point or greater uppercase letters (on other side), and ask patient to read the items aloud.
2. Tell patient that each item belongs to a different category. Give a category cue and ask patient to indicate which of the words belongs in the stated category (eg, "Which one is the game?"). Allow up to 5 attempts. Failure to complete this task indicates possible cognitive impairment.
3. When patient identifies all 4 words, remove the sheet of paper. Tell patient that he or she will be asked to remember the words in a few minutes.
4. Engage patient in distractor activity for 2 to 3 minutes, such as counting to 20 and back, counting back from 100 by 7, spelling WORLD backwards.
5. FREE RECALL — 2 points per word: Ask patient to state as many of the 4 words he or she can recall. Allow at least 5 seconds per item for free recall. Continue to step 6 if no more words have been recalled for 10 seconds.
6. CUED RECALL — 1 point per word: Read the appropriate category cue for each word not recalled during free recall (eg, "What was the game?").

Word	Cue	Free recall (2 pts.)	Cued Recall (1 pts)
Checkers	Game		
Saucer	Dish		
Telegram	Message		
Red Cross	Organization		

MIS

Scoring

The maximum score for the MIS is 8.

- 5-8 No cognitive impairment
- ≤ 4 Possible cognitive impairment