กรมการแพทย์
DEPARTMENT OF MEDICAL SERVICES

Comprehensive Geriatric Assessment

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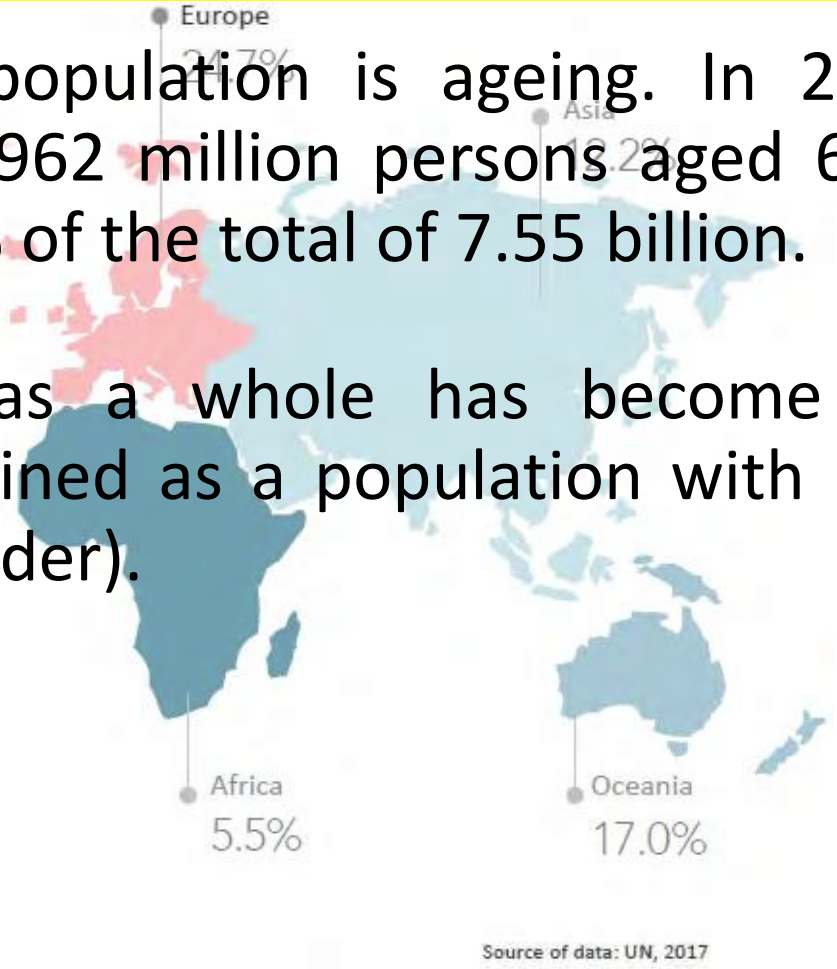
Outline

- Background
- Definition of CGA
- Purpose of assessment
- Indications for assessment
- Specific domains to measure
- Screening and Assessment Tools
- Case example

Global Ageing situation

- The global population is ageing. In 2017, there were about 962 million persons aged 60 years or older, or 13% of the total of 7.55 billion.

- The world as a whole has become an “aged society” (defined as a population with 10.0-19.9% aged 60 or older).



Source of data: UN, 2017

- Among ASEAN member countries, three countries are now considered an ageing society, with the highest proportion of the population who are elderly (age 60 years or older) are Singapore (20%), Thailand (17%) and Vietnam (11%).

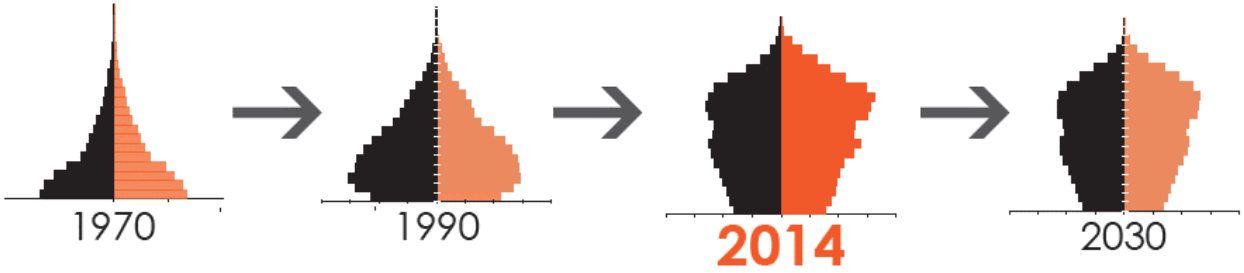
	1999		2017	
Country	N population (million)	% age 60+ years	N population (million)	% age 60+ years
Singapore	3.8	10.5	5.7	19.5
Thailand*	62.0	9.6	69.0	17.1
Viet Nam	79.4	8.6	95.5	11.1
Malaysia	22.9	6.1	31.6	9.7
Myanmar	47.1	7.1	53.4	9.5
Indonesia	208.6	7.2	264.0	8.6
Brunei Darussalam	0.3	4.0	0.4	8.0
Philippines	76.3	5.0	104.9	7.7
Cambodia	11.9	4.9	16.0	7.0
Lao PDR	5.3	5.4	6.9	6.3
TOTAL	**517.6**		**647.4**	

Source: : UN, 2017

Remarks: Number of Thai population is the UN estimate of the entire resident population, including those without Thai nationality or names not in the Civil Registration System.

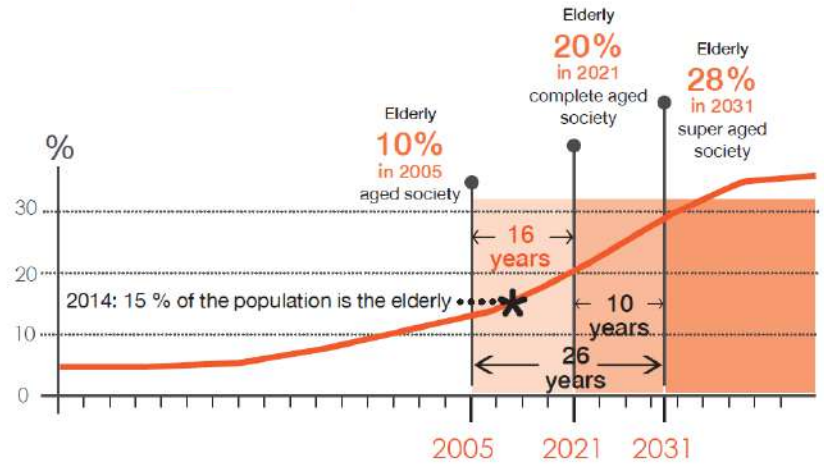
Current situation in Thailand

Thai population pyramids: year 1970, 1990, 2014, and 2030



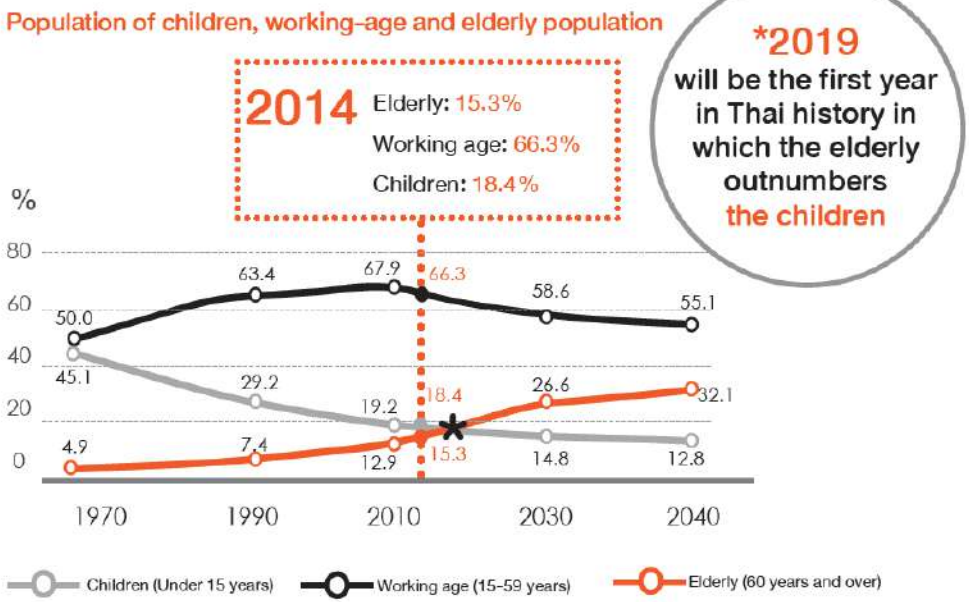
Source:

- Population and Housing Census: 1970 and 1990. NSO
- Population Projections for Thailand, 2010 – 2040. NESDB



Sources:

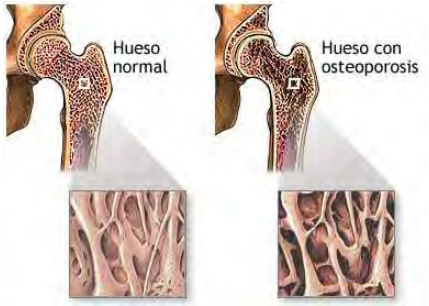
- Population and Housing Census: 1970, 1980, 1990, 2000 and 2010. NSO
- Population Projections for Thailand, 2010 – 2040. NESDB

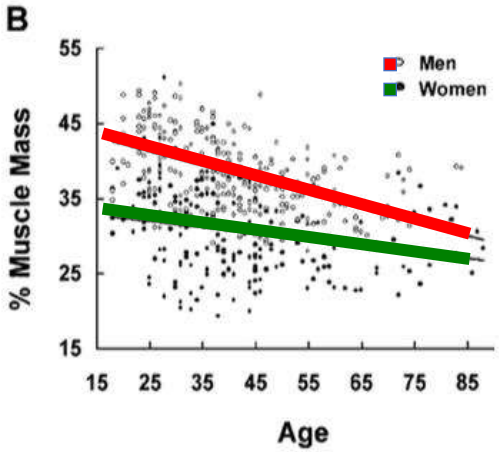


The effects of aging

Muscle

Bone





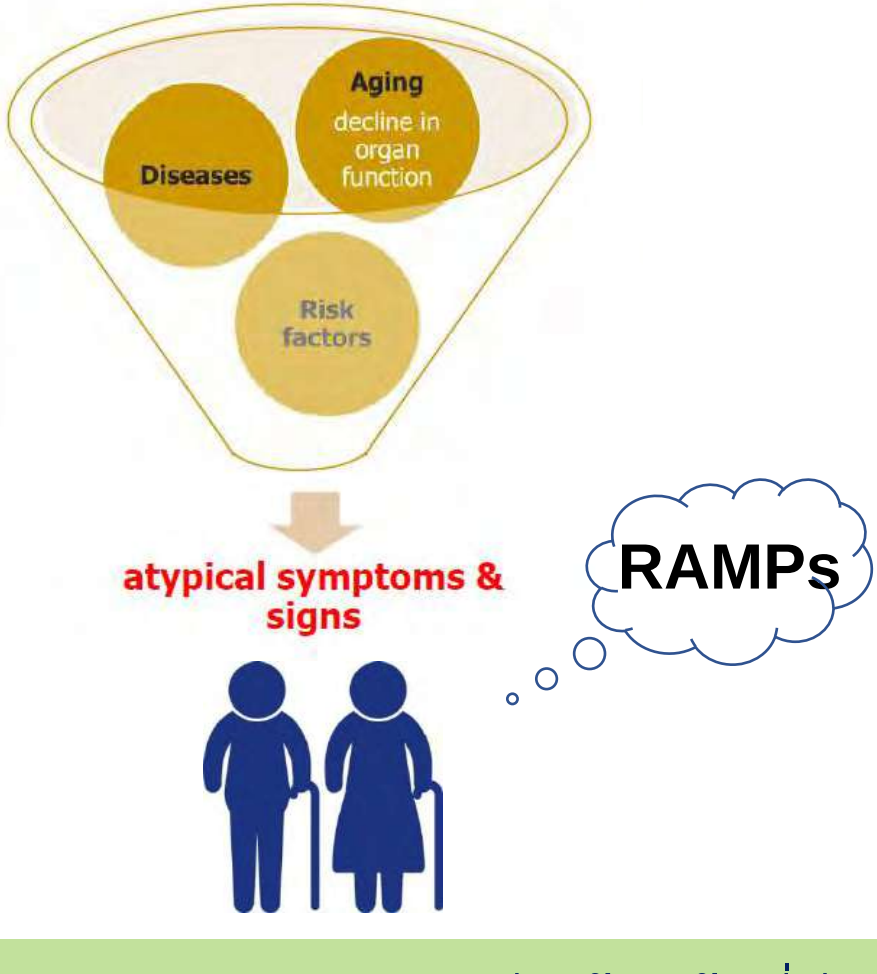
Joints

Janssen I, et al. J Appl Physiol 2000.

Ageing and health-related physical fitness

	Variable	
Circulation	HR_{rest}	Unchanged
	HR_{max}	Lower
	Q_{max}	Lower
Metabolism	Resting and exercise BP	Higher
	VO_2R_{max}	Lower
Respiration	Residual volume	Higher
	Vital capacity	Lower
	Reaction time	Slower
Performance	Muscular strength	Lower
	Flexibility	Lower
	Recovery	Longer
Body composition	Fat-free body mass	Lower
	% Body fat	Higher
	Glucose tolerance	Lower
	Bone mass	Lower

Ageing


Aging
decline in organ function
Diseases
Risk factors
atypical symptoms & signs
RAMPs

RAMPs

R : Reduced body reserve

A : Atypical presentation

M : Multiple pathology

P : Polypharmacy

S : Social adversity

General Medicine Conditions

- Depression
- Diabetes
- Hearing impairment
- Heart failure
- Ischemic heart disease
- Osteoarthritis
- Osteoporosis
- Pneumonia
- Stroke
- Visual impairment

Wenger N et al. Ann Intern Med 2003; 139: 740-747.

Geriatric Conditions

- Dementia or delirium
- End-of-life care
- Falls or mobility disorders
- Malnutrition
- Pressure ulcers
- Urinary incontinence

Wenger N et al. Ann Intern Med 2003; 139: 740-747.

Cross-cutting Conditions

- Definition: more commonly a concern in vulnerable older patients than in general adult care
  - Continuity of care
  - Hospital care
  - Medication use
  - Pain management
  - Screening and prevention

Wenger N et al. Ann Intern Med 2003; 139: 740-747.

Geriatric syndromes

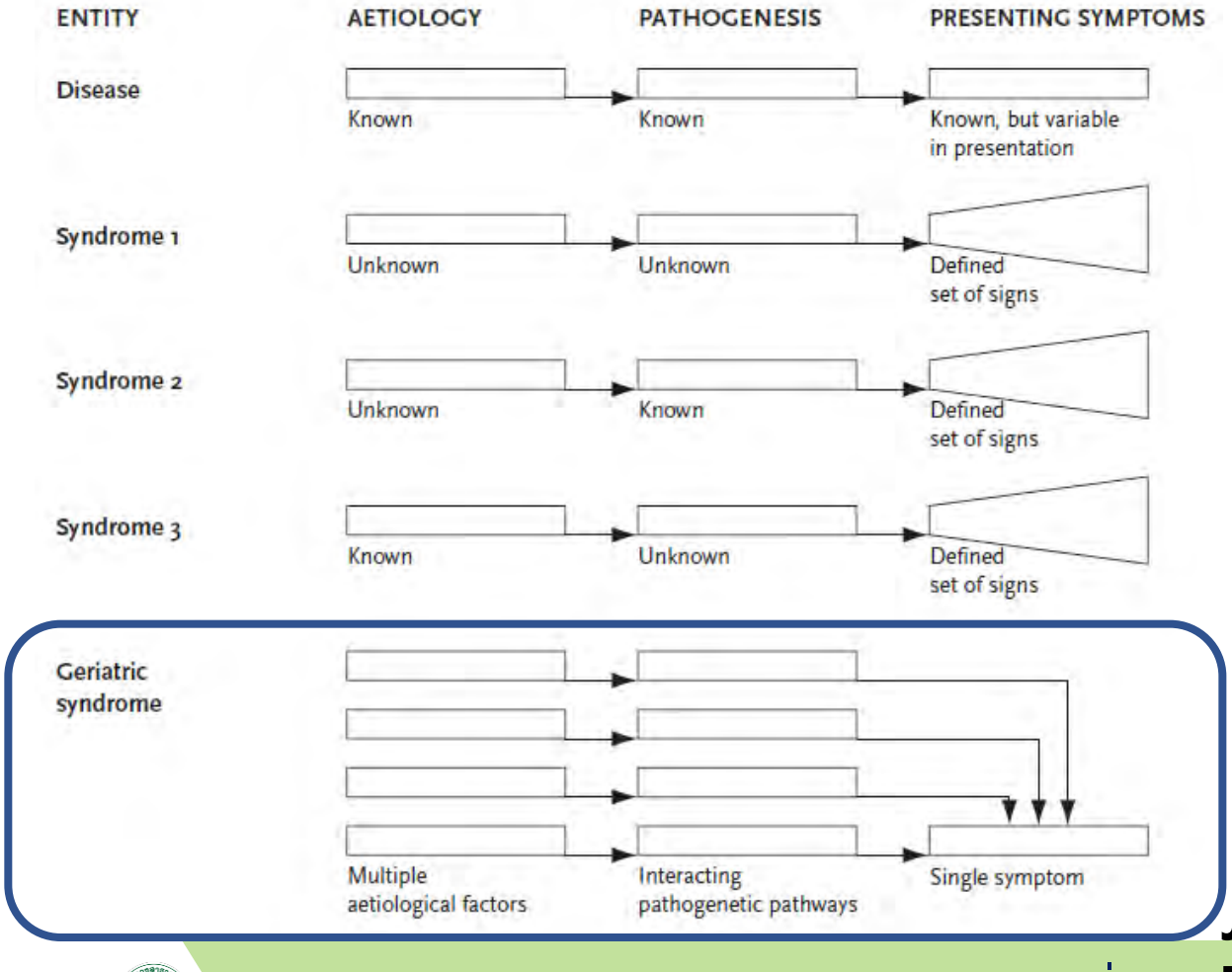
Table 1. Common geriatric syndromes

Falls
Cognitive dysfunction
Gait problems
Vision/hearing loss
Malnutrition

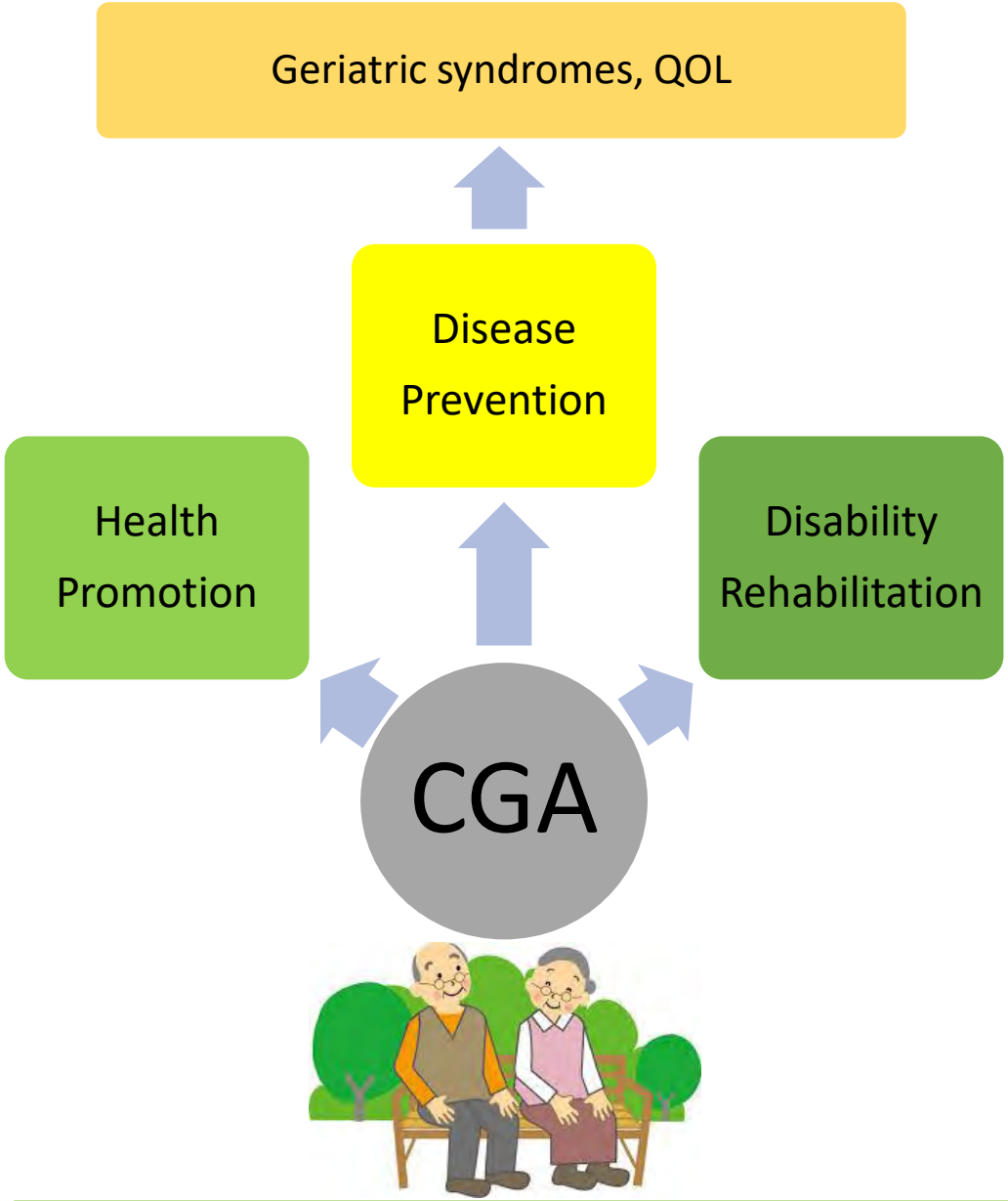
Classic Geriatric syndromes

- Dementia
- Delirium
- Depression
- Falling and gait disorder
- Urinary incontinence
- Weight loss or poor nutrition
- Chronic dizziness
- Sleep disorder

Geriatric syndromes



JAGS 55:780–791, 2007


Geriatric syndromes, QOL
Disease Prevention
Health Promotion
Disability Rehabilitation
CGA

Definition of Comprehensive Geriatric Assessment

- Comprehensive Geriatric Assessment; CGA (also called Multidisciplinary Geriatric Assessment) is defined as a multidisciplinary, holistic approach to the evaluation of older people's health needs, providing appropriate strategies for treatment, support and follow up.

British journal of hospital medicine (London, England: 2005)
DOI: 10.12968/hmed.2014.75.Sup8.C122 · Source: PubMed

Medical records

Refer system

CGA

Older person

Holistic care

Multidisciplinary team

Purpose

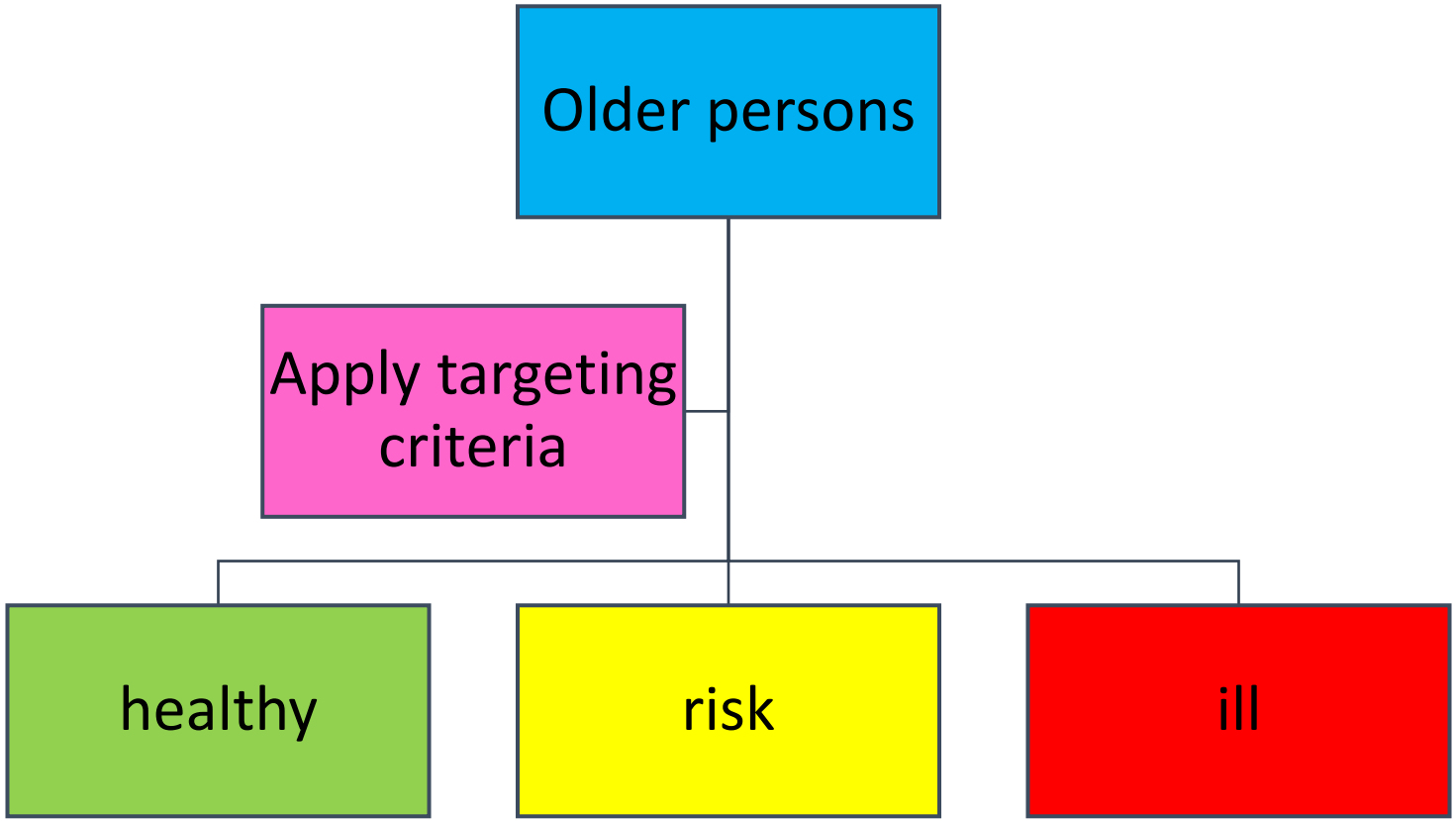
- Highest priority:
  - Prevention of decline in the independent performance of ADLs
  - Drives the diagnostic process and clinical decision making
- Screen for preventable diseases
- Screen for functional impairments that may result in physical disability and amenable to intervention

Palmer RM, Med Clin North Am, 1999

- Early detection of risk factors for functional decline when linked to specific interventions may help reduce the incidence of functional disability and dependency for older patients

Palmer RM, Med Clin North Am, 1999

Indications for assessment



Who Needs Assessments?

- For patients with living situation in transition
- Recent development of physical or cognitive impairments
- Patients with fragmented specialty medical care
- Evaluating patient competency/capacity
- Dealing with medico-legal issues

NIH Consensus Dev Conf JAGS, 1990

Geriatric assessment

- Too Sick to Benefit (ill)
  - Critically ill or medically unstable
  - Terminally ill
  - Disorders with no effective treatment
- Appropriate and Will Benefit (risk)
  - Multiple interacting biopsychological problems that are amenable to treatment
  - Disorders that require rehabilitation therapy
- Too Well to Benefit (healthy)
  - One or a few medical conditions
  - Needing prevention measures only

Benefits of CGA

- Improves diagnostic accuracy.
- Optimizes medical and rehabilitation treatment.
- Enhances health and functional outcomes.
- Informs the development of individualized care plans.
- Assists in avoiding the potential complications of hospitalization.
- Facilitates effective discharge planning.

CGA assessment team

- Geriatrician
- Geriatric Nurse Practitioner
- Social Worker
- Clinical Nurse Case Manager
- Therapists (PT/OT)
- Pharmacist
- Nutritionist
- Psychologist
- Other Geriatric Specialists

Domains of geriatric assessment

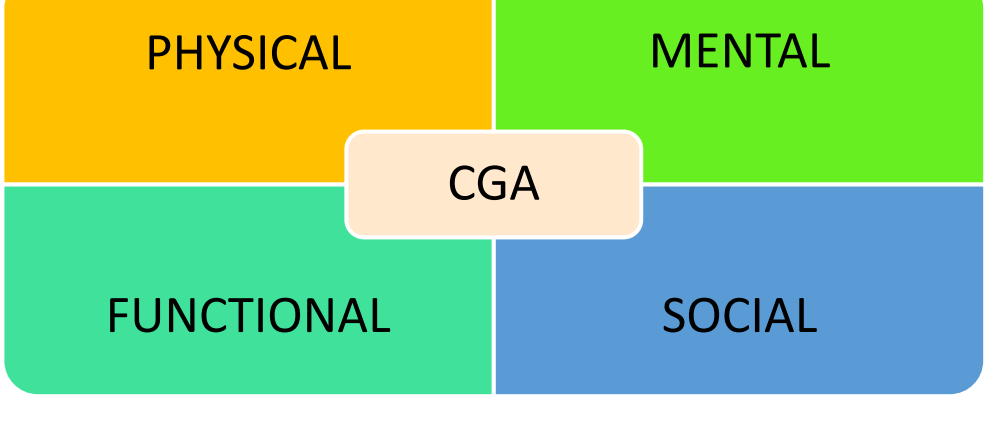
Domains identified by the World Health Organization as needing assessment in elderly patients[5]

Physical health
Mental function: cognitive and psychiatric symptoms
Functional capacity: basic activity of daily living and instrumental activity of daily living
Social resources
Environmental resources
Economic resources

WHO, Health of the elderly. 1989

Comprehensive geriatric assessment (CGA)

- Physical health
- Functional ability
- Psychological health or mental health
- Social health



Components of CGA

Component	Element
Physical assessment	Problem list Comorbid conditions and disease severity Medication review Nutritional status
Functional assessment	Basic activities of daily living Instrumental activities of daily living Activity/exercise status Gait and balance
Psychological assessment	Mental status (cognitive) testing Mood/depression testing
Social assessment	Informal support needs and assets Care resource eligibility/financial assessment Home safety Transportation

Darryl Wieland and Victor Hirth.
Cancer control 2003; 10(6): 454-462.

Components of CGA

Physical assessment	Problem list Comorbidities Continence Falls risk Nutritional status Medication review Advance care planning Vision and hearing
Functional assessment	Gait and balance Mobility and transfers Basic activities of daily living, e.g. feeding, washing, toileting Instrumental activities of daily living, e.g. shopping, cooking, managing money Advanced activities of daily living, e.g. hobbies and interests
Psychological assessment	Mood Cognition Ideas, concerns and expectations Capacity
Social assessment	Formal care support environmental Home safety and appropriateness Social network providing informal support Accessibility to local resources Financial assessment

British journal of hospital medicine (London, England: 2005)

Four main dimensions of assessment

The four main dimensions covered in a CGA should include physical, functional, psychological and social assessment as follows:

Physical assessment • Presenting complaint • Past medical history • Medication reconciliation and review • Nutritional status • Alcohol • Immunisation status • Advanced directives	**Functional assessment** • Activities of daily living • Balance • Mobility
Psychological assessment • Cognition and mood	**Social assessment** • Living arrangements • Social support • Carer stress • Financial circumstances • Living environment

National Clinical Programme for Older People 2016

Geriatric Screening and Assessment Tools

- Basic Activities of Daily Living
- Instrumental Activities of Daily Living
- PHQ 9
- Mini Cog Test
- MMSE
- Mini Nutrition Assessment (MNA)
- Frailty Index

Activities of Daily Living (ADLs)

- Bathing: personal hygiene and grooming
- Dressing: dressing and undressing
- Transferring: movement and mobility
- Toileting: continence-related tasks including control and hygiene
- Eating: preparing food and feeding

Barthel Index of Activities of Daily Living

Instructions: Choose the scoring point for the statement that most closely corresponds to the patient's current level of ability for each of the following 10 items. Record actual, not potential, functioning. Information can be obtained from the patient's self-report, from a separate party who is familiar with the patient's abilities (such as a relative), or from observation. Refer to the Guidelines section on the following page for detailed information on scoring and interpretation.

The Barthel Index

Bowels
0 = incontinent (or needs to be given enemata)
1 = occasional accident (once/week)
2 = continent
Patient's Score: _____

Bladder
0 = incontinent, or catheterized and unable to manage
1 = occasional accident (max. once per 24 hours)
2 = continent (for over 7 days)
Patient's Score: _____

Grooming
0 = needs help with personal care
1 = independent face/hair/teeth/shaving (implements provided)
Patient's Score: _____

Toilet use
0 = dependent
1 = needs some help, but can do something alone
2 = independent (on and off, dressing, wiping)
Patient's Score: _____

Feeding
0 = unable
1 = needs help cutting, spreading butter, etc.
2 = independent (food provided within reach)
Patient's Score: _____

Transfer
0 = unable – no sitting balance
1 = major help (one or two people, physical), can sit
2 = minor help (verbal or physical)
3 = independent
Patient's Score: _____

Mobility
0 = immobile
1 = wheelchair independent, including corners, etc.
2 = walks with help of one person (verbal or physical)
3 = independent (but may use any aid, e.g., stick)
Patient's Score: _____

Dressing
0 = dependent
1 = needs help, but can do about half unaided
2 = independent (including buttons, zips, laces, etc.)
Patient's Score: _____

Stairs
0 = unable
1 = needs help (verbal, physical, carrying aid)
2 = independent up and down
Patient's Score: _____

Bathing
0 = dependent
1 = independent (or in shower)
Patient's Score: _____

Total Score: _____

(Collin et al., 1988)

Scoring:

Sum the patient's scores for each item. Total possible scores range from 0 – 20, with lower scores indicating increased disability. If used to measure improvement after rehabilitation, changes of more than two points in the total score reflect a probable genuine change, and change on one item from fully dependent to independent is also likely to be reliable.

Sources:

- Collin C, Wade DT, Davies S, Horne V. The Barthel ADL Index: a reliability study. *Int Disabil Stud.* 1988;10(2):61-63.
- Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. *Md State Med J.* 1965;14:61-65.
- Wade DT, Collin C. The Barthel ADL Index: a standard measure of physical disability? *Int Disabil Stud.* 1988;10(2):64-67.

Instrumental Activities of Daily Life (IADLs)

- Laundry
- Shopping
- Light Housework
- Heavy Housework
- Telephone
- Financial Management
- Transportation
- Meal Preparation
- Medication Management

Instrumental Activities of Daily Living (IADL)

Instructions: Circle the scoring point for the statement that most closely corresponds to the patient's current functional ability for each task. The examiner should complete the scale based on information about the patient from the patient him-/herself, informants (such as the patient's family member or other caregiver), and recent records.

A. Ability to use telephone	Score
1. Operates telephone on own initiative; looks up and dials numbers, etc.	1
2. Dials a few well-known numbers	1
3. Answers telephone but does not dial	1
4. Does not use telephone at all	0

B. Shopping	
1. Takes care of all shopping needs independently	1
2. Shops independently for small purchases	0
3. Needs to be accompanied on any shopping trip	0
4. Completely unable to shop	0

C. Food preparation	
1. Plans, prepares, and serves adequate meals independently	1
2. Prepares adequate meals if supplied with ingredients	0
3. Heats and serves prepared meals, or prepares meals but does not maintain adequate diet	0
4. Needs to have meals prepared and served	0

D. Housekeeping	
1. Maintains house alone or with occasional assistance (e.g., "heavy work domestic help")	1
2. Performs light daily tasks such as dishwashing, bed making	1
3. Performs light daily tasks but cannot maintain acceptable level of cleanliness	1
4. Needs help with all home maintenance tasks	1
5. Does not participate in any housekeeping tasks	0

E. Laundry	Score
1. Does personal laundry completely	1
2. Launders small items; rinses stockings, etc.	1
3. All laundry must be done by others	0

F. Mode of transportation	
1. Travels independently on public transportation or drives own car	1
2. Arranges own travel via taxi, but does not otherwise use public transportation	1
3. Travels on public transportation when assisted or accompanied by another	1
4. Travel limited to taxi or automobile with assistance of another	0
5. Does not travel at all	0

G. Responsibility for own medications	
1. Is responsible for taking medication in correct dosages at correct time	1
2. Takes responsibility if medication is prepared in advance in separate dosages	0
3. Is not capable of dispensing own medication	0

H. Ability to handle finances	
1. Manages financial matters independently (budgets, writes checks, pays rent and bills, goes to bank), collects and keeps track of income	1
2. Manages day-to-day purchases, but needs help with banking, major purchases, etc.	1
3. Incapable of handling money	0

(Lawton & Brody, 1969)

Scoring: The patient receives a score of 1 for each item labeled A – H if his or her competence is rated at some minimal level or higher. Add the total points circled for A – H. The total score may range from 0 – 8. A lower score indicates a higher level of dependence.

Sources:

- Cromwell DA, Eagar K, Poulos RG. The performance of instrumental activities of daily living scale in screening for cognitive impairment in elderly community residents. *J Clin Epidemiol*. 2003;56(2):131-137.
- Lawton MP. The functional assessment of elderly people. *J Am Geriatr Soc*. 1971;19(6):465-481.
- Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist*. 1969;9(3):179-186.
- Polisher Research Institute. Instrumental Activities of Daily Living Scale (IADL). Available at: http://www.abramsoncenter.org/PRI/documents/IADL.pdf. Accessed February 15, 2005.

Patient Health Questionnaire (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems (circle your answer):

Not at all	Several days	More than half days	Nearly every day	
0	1	2	3	Little interest in doing things
0	1	2	3	Feeling down, depressed or hopeless
0	1	2	3	Trouble falling or staying asleep or sleeping too much
0	1	2	3	Feeling tired or having little energy
0	1	2	3	Poor appetite or overeating
0	1	2	3	Feeling bad about yourself-or that you are a failure or have let yourself or your family down
0	1	2	3	Trouble concentrating on things, such as reading the newspaper or watching television
0	1	2	3	Moving or speaking so slowly that other people could have noticed? Or the opposite-being so fidgety or restless that you have been moving around a lot more than usual
0	1	2	3	Thoughts that you would be better off dead or hurting yourself in some way

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

☐ Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult

The Mini Cog

Administration

1. Instruct the patient to listen carefully to and remember three unrelated words and then to repeat the words.

2. Instruct the patient to draw the face of a clock, either on a blank sheet of paper or on a sheet with the clock circle already drawn on the page. After the patient puts the numbers on the clock face, as him/her to draw the hands of the clock to read a specific time. (CDT)

3. Ask the patient to repeat the three previously stated words.

The Mini Cog (continued)

Scoring

•Give 1 point for each recalled word after the CDT distractor.

•Patients recalling none of the three words are classified as demented (Score = 0)

•Patients recalling all three words are classified as non-demented (Score = 3)

•Patients with intermediate word recall of 1-2 words are classified based on the CDT

•(Abnormal = demented; Normal = non-demented)

•Note: The CDT is considered normal if all the numbers are present in the correct sequence and position; and the hands readably display the requested time.

Nutrition Assessment

- Without wanting to, I have lost or gained 10 pounds in the last 6 months.
- I eat fewer than two meals per day.
- I have three or more drinks of beer, liquor or wine almost every day.
- I have tooth or mouth problems that make it hard for me to eat.
- I don’t always have enough money to buy the food that I need.
- I eat alone most of the time.
- I take three or more different prescribed or over-the-counter drugs a day.
- I am not always physically able to shop, cook and/or feed myself.

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. Total the numbers for the final screening 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 3 kg (6.6 lbs)
1 = does not know
2 = weight loss between 1 and 3 kg (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 ☐

F1 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 ☐

IF BMI IS NOT AVAILABLE, REPLACE QUESTION F1 WITH QUESTION F2.
DO NOT ANSWER QUESTION F2 IF QUESTION F1 IS ALREADY COMPLETED.

F2 Calf circumference (CC) in cm
0 = CC less than 31
3 = CC 31 or greater ☐

Screening score ☐☐
(max. 14 points)

12-14 points: Normal nutritional status
8-11 points: At risk of malnutrition
0-7 points: Malnourished

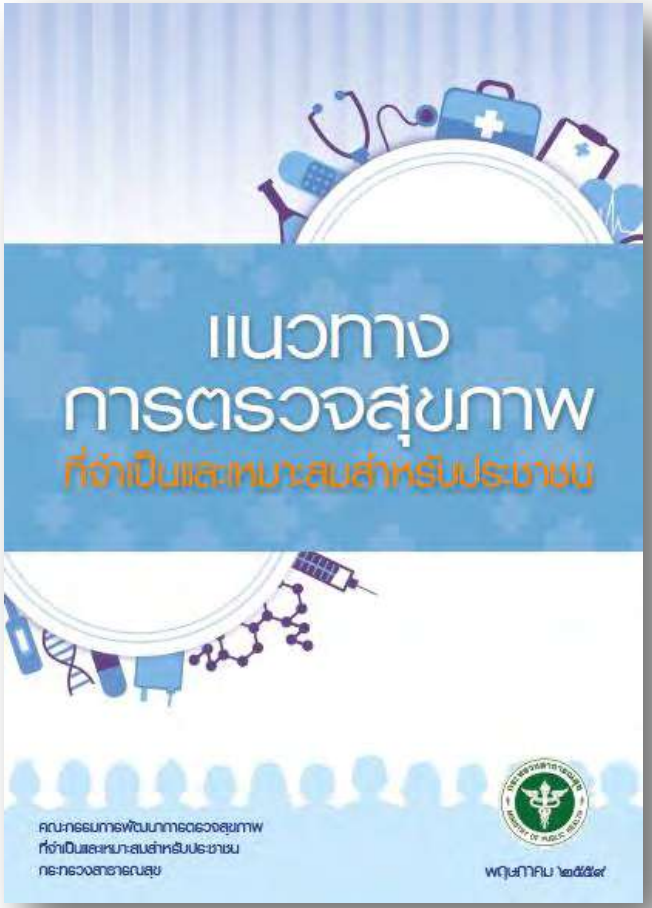
FRAIL Scale

- Fatigue
- Resistance (the ability to climb one flight of stairs)
- Ambulation (the ability to walk one block)
- Illness (greater than five)
- Loss of weight (>5%)

Scoring: 0= Robust 1-2= Pre-frail > 3 = Frail

Manual of screening and assessment tools

DMS, MOPH 2014.



DMS, MOPH 2016.

Geriatric screening and assessment tools

DMS, MOPH, Thailand: 2014.

promoting hospital

- Screening
- Primary care
- Refer
- Health promotion
- Networking in community

Community hospital

- Assessment
- Secondary care
- Refer
- Aging health data center

Center hospital

- Assessment
- Tertiary care

	List		Community	Institutional
1.	Common problems	DM	Blood sugar	
		HT	BP	
		CVD	Risk score	
		Teeth	Oral screening	Oral assessment
		Eye	Vision screening test	Snellen chart
2.	Geriatric syndromes	Cognitive/dementia	AMT	MMSE-Thai 2002
		depression	PHQ 2 (2Q)	PHQ 9 (9Q)
		OA knee	knee pain checklist	Clinical assessment
		fall	TUGT	
		incontinence	Continence	Incontinence health check
		malnutrition	BMI	MNA
		Sleep disorder	Sleep screening	Sleep test
3.	Long term care	performance	ADLs/IADLs	
			Long term care screening	Assessment tool for LTC

Case example

Case of Mrs. A

•84 years old African-American female comes to the Geriatrics Practice accompanied by her niece.

"I don't know why I'm here!" *(patient)*

"She has problems with memory" *(niece)*

Niece said:

- “She lives alone. She shops and prepares food herself. However, last week she started to boil some water and completely forgot it was on the stove. The plastic cover was completely melted. When I asked her about this she said she just forgot. She often forgets where she has placed things. This has been going on for many years but has gotten worse just recently.

Niece said:

- Also, at one time she has fallen at home at night after tripping on a rug. She did not break anything but bruised her shoulder and forehead.
- She also used to go to church almost everyday but rarely goes now. She hardly socializes and prefers to stay at home and watch TV. She does not have any kids and we're her closest relatives.
- You also have to shout, she's very hard of hearing. She has the hearing aids but she doesn't like wearing them."

Patient said:

- “I don’t know why I’m here. Oh, I remember that time when I left the pot on the stove. Well I just forgot. Do you know how old am I? I’m 84 years old and my memory is not what it used to be. I go to the shop myself when my knees don’t hurt. Usually I just eat the frozen dinners when I don’t get to the store. I also fell one time, I think. I had to go to the bathroom to pee and I fell. I hit my head but it wasn’t bad. I didn’t break any bones or anything.

Patient said:

- I don’t go out much. I’m alone most of the time. I love going to church but I couldn’t hear what my minister is saying. I also couldn’t read the program. Well I’m 84 years old and it comes with age. I have a hearing aid but they don’t work.
- I take my medicines but I don’t remember what they are but I do take them!”

Niece said:

- “She has been followed-up at the Medical Clinic for more than 10 years but she has had sporadic visits. She was hospitalized before for blood clots in the legs that actually went to her lungs.
- She had a colonoscopy 2 years ago and they found this growth. They did a biopsy and they said it wasn’t cancer.

Niece says:

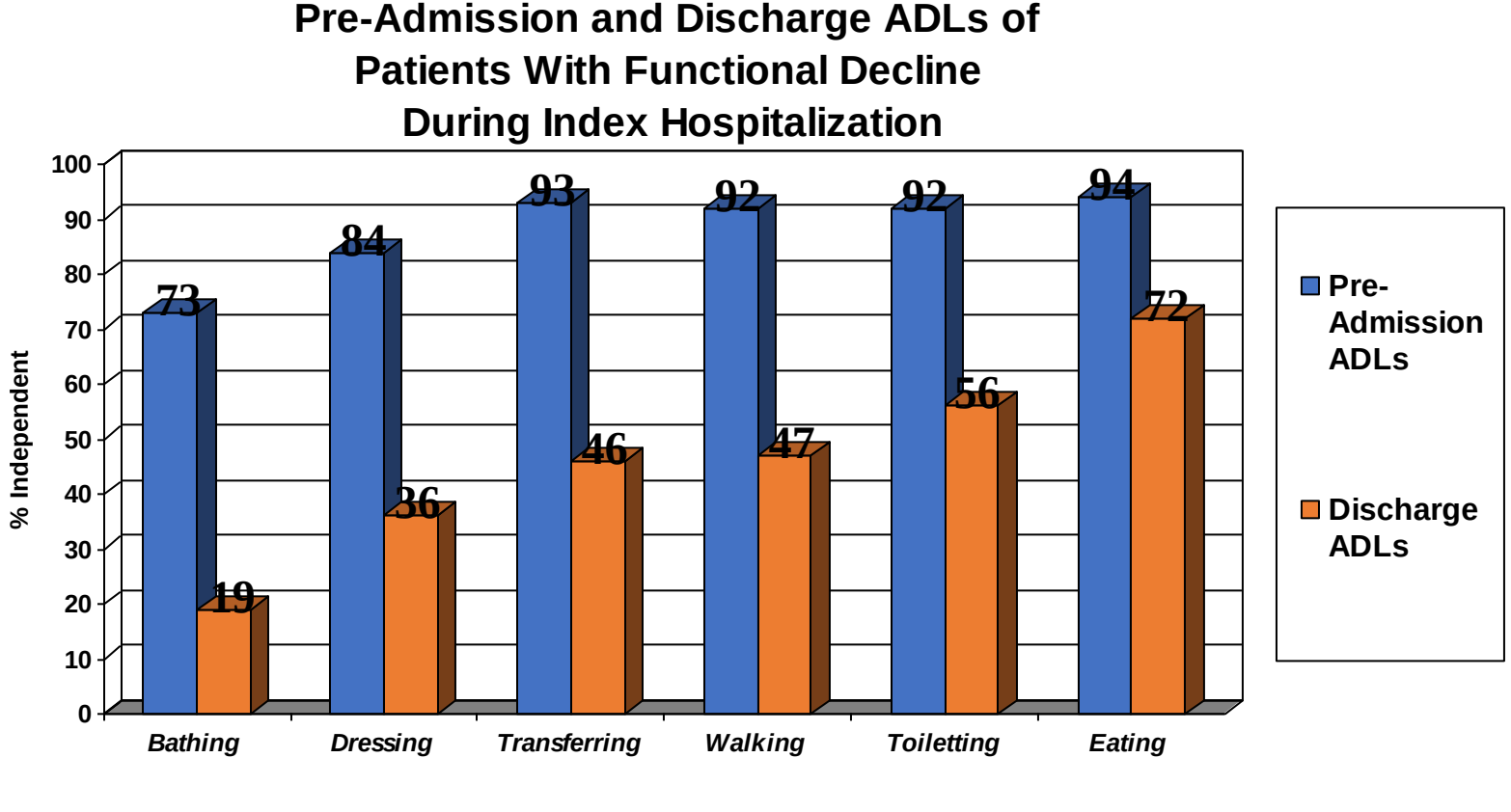
- I have all of her medicines with me. She has glaucoma and she takes this eyedrops on both eyes. She also has this water pill that she takes for her high blood pressure.
- She also has a cane to help her but she doesn't use it outside the house. She says it's too obvious".

Which are the trigger factors for Mrs. A?

- Lives alone
- Rarely goes to church
- Doesn’t hear and see well
- Fell at home
- Left the pot on the stove
- Rarely socializes
- Eats frozen dinners
- Weakness and pain in knees
- Doesn’t use cane outside the home
- Has high blood pressure and glaucoma
- Had prior history of leg and lung blood clots
- Had prior growth in colon
- Takes her own medicines but doesn’t know them
- Forgets things
- Had irregular follow-up at prior clinic
- Doesn’t wear hearing aid

Comprehensive Geriatric Assessment
Case of Mrs. A:
Functional Domain

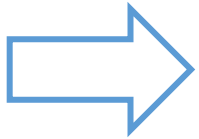
Why Care about Function?



Sager MA Arch Intern Med, 1996

KATZ INDEX OF ACTIVITIES OF DAILY LIVING

- Bathing
- Dressing
- Toileting
- Transfer
- Continence
- Feeding



Independent

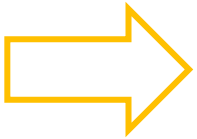
Assistance

Dependent

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

INSTRUMENTAL ACTIVITIES OF DAILY LIVING (IADLs)

- Telephone
- Traveling
- Shopping
- Preparing meals
- Housework
- Medication
- Money



Independent

Assistance

Dependent

The Oars Methodology: Multidimensional Functional Assessment Questionnaire; 1978.

IADLs

- JAGS, April, 1999- community dwelling, 65y/o and older. Followed up at 1yr, 3yr, 5yr
- Four IADLs
  - Telephone
  - Transportation
  - Medications
  - Finances

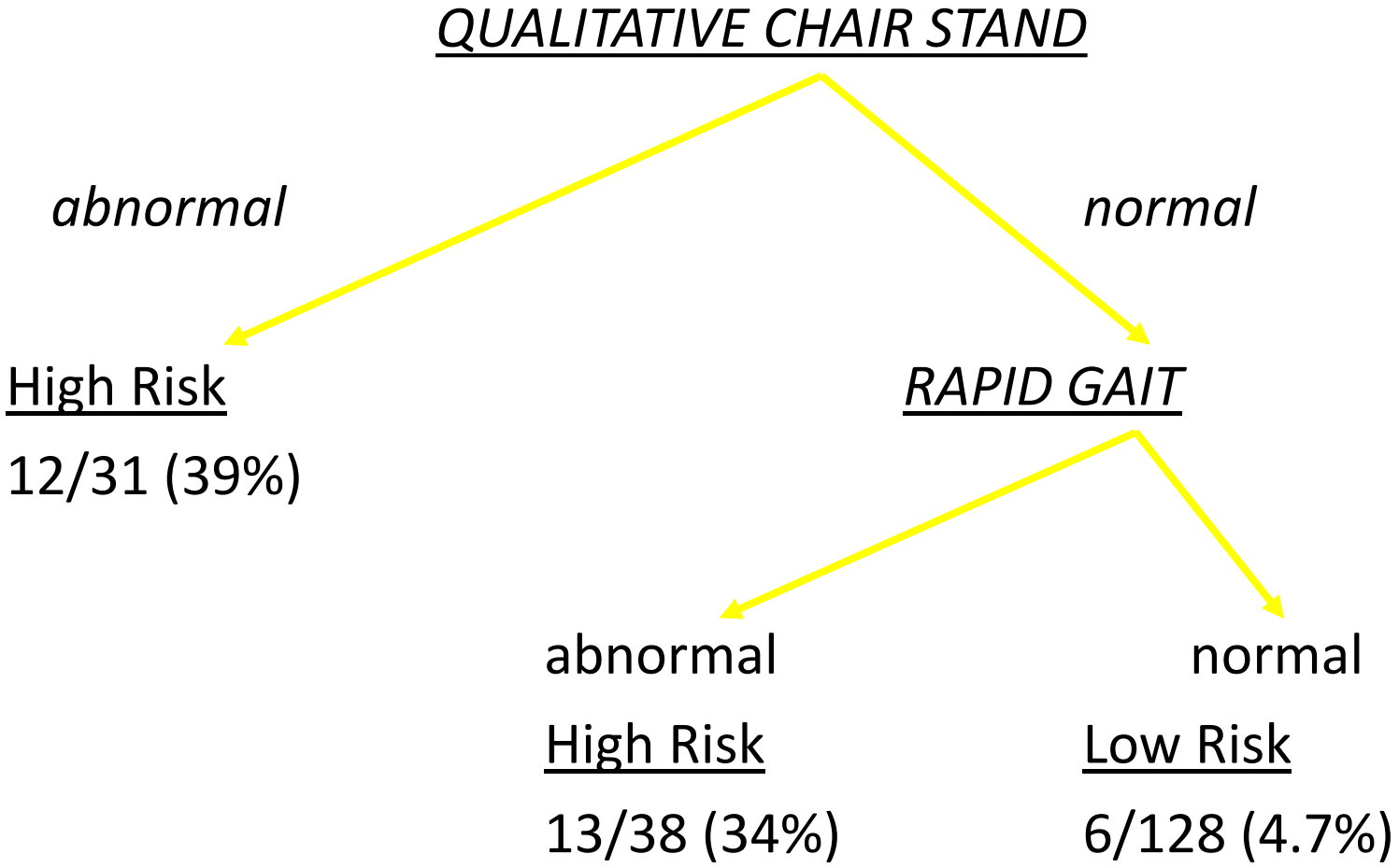
- Barberger-Gateau, Pascale and Jean-Francois Dartigues, “Four Instrumental Activities of Daily Living Score as a Predictor of One-year Incident Dementia”, Age and Ageing 1993; 22:457-463.
- Berbeger-Gateau, Pascale and Fabrigoule, Colette et al. “Functional Impairment in Instrumental Activities of Daily Living: An Early Clinical Sign of Dementia?”, JAGS 1999; 47:456-463

IADLs

- At 3yrs, IADL impairment is a predictor of incident dementia
    - 1 impairment, OR=1
    - 2 impairments, OR=2.34
    - 3 impairments, OR=4.54
    - 4 impairments, lacked statistical power

Comprehensive Geriatric Assessment
Case of Mrs. A:
Physical Domain

“Get up & Go Test”



“Get up and Go”

- ONLY VALID FOR PATIENTS NOT USING AN ASSISTIVE DEVICE
- Get up and walk 10 ft, and return to chair

Seconds	*Rating*
<10	freely mobile
<20	mostly independent
20-29	variable mobility
>30	assisted mobility

- Mathias S, Nayak US, Isaacs B. Balance in elderly patients: the “Get-up and Go” test. *Arch phys Med Rehabil.* 1986; 67(6): 387-389.

Get up and Go

- Sensitivity 88%
- Specificity 94%
- Time to complete <1min.
- Requires no special equipment

- Cassel, C. Geriatric Medicine: An Evidence-Based Approach, 4th edition, *Instruments to Assess Functional Status,* p. 186.

Visual Impairment

- Visual Impairment
  - Prevalence of functional blindness (worse than 20/200)
    - 71-74 years 1%
    - >90 years 17%
    - NH patients 17%
  - Prevalence of functional visual impairment
    - 71-74 years 7%
    - >90 years 39%
    - NH patients 19%

Salive ME Ophthalmology, 1999.

Hearing Impairment

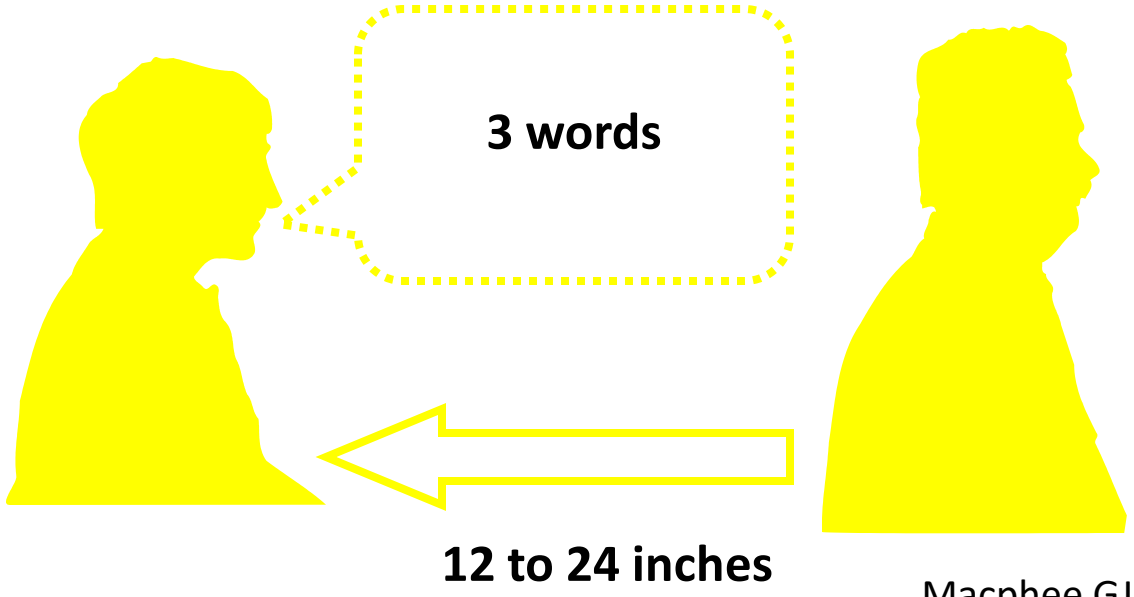
- Hearing Impairment
  - Prevalence:
    - 65-74 years = 24%
    - ≥75 years = 40%
  - National Health Interview Survey
    - 30% of community-dwelling older adults
    - 30% of ≥85 years are deaf in at least one ear

Nadol, NEJM, 1993

Moss Vital Health Stat, 1986.

Hearing Impairment

- Audioscope
  - A handheld otoscope with a built-in audiometer
- Whisper Test



Macphee GJA Age Aging, 1988

Comprehensive Geriatric Assessment
Case of Mrs. A:
Cognitive Domain

Cognitive Dysfunction

- Dementia
  - Prevalence: 30% in community-dwelling patients ≥85 years
  - Alzheimer's disease and vascular dementias comprise ≥80% of cases
- Risk for functional decline, delirium, falls and caregiver stress

Foley Hosp Med, 1996.

THE FOLSTEIN MINI-MENTAL STATE EXAMINATION

- Orientation:
  - What is the year/season/date/day/month?
  - Where are we state/county/town/hospital/floor?
- Registration:
  - Name 3 objects: 1 second to say each. Then ask the patient all 3 after you have said them.
- Attention/ Calculation:
  - Begin with 100 and count backward by 7.
  - Alternatively, spell “WORLD” backwards.
- Recall:
  - Ask for all 3 objects repeated above.

MMSE

- Language:
  - Show a pencil & a watch and ask the patient to name them.
- Repeat:
  - “No ifs, and or buts.”
- A 3 stage command:
  - “Take the paper in your right hand fold it in half, and put it on the floor.”
- Read and obey the following:
  - CLOSE YOUR EYES.
- Ask a patient to write a sentence.
- Copy a design (complex polygon).

MMSE

- Median scores based on age and educational level:

- >85 y/o and >12 yrs educ. 28
- 70-74 y/o and >12 yrs educ. 29
- 65-69 y/o and 0-4 yrs educ. 22

- Crum, RM, Anthony, JC, Bassett, SS, et al. Population-based norms for the mini-mental state examination by age and educational level. JAMA 1992

Clock Drawing Test

- Clock Drawing Test:
  - “Draw a clock”
    - Sensitivity=75.2%
    - Specificity=94.2%

Wolf-Klein GP JAGS, 1989.

The Mini-Cog

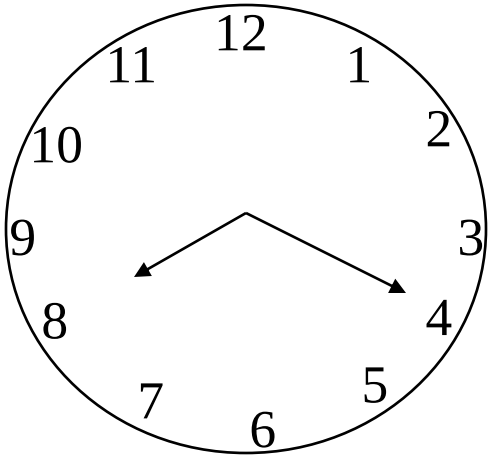
- Components
  - 3 item recall: give 3 items, ask to repeat, divert and recall
  - Clock Drawing Test (CDT)
    - Normal (0): all numbers present in correct sequence and position and hands readably displayed the represented time

- Abnormal Mini-Cog scoring with best performance
  - Recall =0, or
  - Recall ≤2 AND CDT abnormal

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

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

Depression

- 10% of >65 y/o with depressive symptoms
- 1% with major depressive disorder
- Associated with physical decline of community-dwelling adults and hospitalized patients

Foley K Hosp Med, 1996

GERIATRIC DEPRESSION SCALE (Short Form)

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.

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.

Other domains to be assessed:

- Current health status: nutritional risk, health behaviors, tobacco, and ETOH use and exercise
- Social assessments: especially elder abuse if applicable
- Health promotion and disease prevention
- Values history: advanced directives, end of life care

Report Outline

- Reason for evaluation
- Medical history, current health status
- Functional status
- Social assessment, current psychiatric status
- Preference for care in event of severe illness
- Summary statement
- Care plan

Care Plan

- Recommended services: either agency or family members
- How often will it be provided
- How long it will be provided
- What financing arrangements will pay for it
- DYNAMIC PLAN, CONTINUAL ASSESSMENT

What am I going to do with the information obtained?

- The most critical step for clinicians is the integration of the data that have been obtained form the instruments.
- A common pitfall is to establish a diagnosis that is based solely on poor performance on an assessment instrument.
- Information obtained is sometimes underutilized or ignored by clinicians.

Comprehensive Geriatric Assessment

On examination:

- Presence of isolated systolic hypertension
- Presence of cataracts on both eyes L>R
- Impacted cerumen in both ears, TM not visualized
- Rest of exam: unremarkable

On assessment:

- MMSE: 24/30
- GDS: 5/15
- Rarely socializes due to fear of embarrassment
- Independent of all ADLs
- Independent on IADLs except assistance with housework, medication and money
- Get up and Go Test: >20 seconds

Possible Coordinated Plan:

1. Remove cerumen
2. Refer to optometrist and ophthalmologist
3. Control BP
4. Home assessment
5. Refer to activity centers
6. Frequent visits to establish rapport and trust
7. Home visits health care professionals
8. Provision of daytime assistance

Key points

- The ageing population is growing at a rapid pace.
- Older adults have additional, complex, multifaceted needs when compared with younger populations.
- The comprehensive geriatric assessment is a dynamic process involving a multidisciplinary holistic assessment of the older person's health needs and the creation of a patient-centred management plan.
- Meta-analyses and systematic reviews have demonstrated tangible long-term benefits of comprehensive geriatric assessment.

British Journal of Hospital Medicine, August 2014, Vol 75, No 8

Key points

- Early identification of frail patients with significant comorbidities or complex social requirements is vital to allow initiation of comprehensive geriatric assessment even in the acute setting where resource and time constraints exist.
- Core medical trainees can contribute to much of the comprehensive geriatric assessment with key insights into the problem list, cognition, mood, falls assessment, continence, medication review and advance care planning.
- Involvement of relevant multidisciplinary team members and effective communication within the team is key to the success of comprehensive geriatric assessment.

British Journal of Hospital Medicine, August 2014, Vol 75, No 8

Thank you

กรมการแพทย์

Department of Medical Services