

What is Geriatric Medicine and Gerontology?



Dr Naganath Narasimhan Prem

Consultant

Department of Geriatric Medicine

Jaslok Hospital, Mumbai



Outline

- ❑ Geriatrics – Definition
- ❑ Gerontology
- ❑ Geriatric Syndromes
- ❑ Comprehensive Geriatric Assessment



- ❑ India is undergoing a demographic transition!
- ❑ While 8 percent of its population was recorded 60 years and above in 2011 Census, it is expected to increase its share to 12.5 percent and 20 percent by 2026 and 2050 respectively
- ❑ We need to be ready!

AGEING and HEALTH

▶ EVERY OLDER PERSON IS DIFFERENT



Some have the level of functioning of a 30 year old.



Some require full time assistance for basic everyday tasks.

Health is crucial to how we experience older age.

#yearsahead

AGEING and HEALTH

▶ WHAT INFLUENCES HEALTH IN OLDER AGE

INDIVIDUAL

ENVIRONMENT THEY LIVE IN



Behaviours



Age-related changes



Genetics



Disease



Housing



Assistive technologies



Transport



Social facilities

#yearsahead

Geriatrics

- ❑ Definition
- ❑ Geriatrics derived from Geras – old age, iatrikos – healer
- ❑ Ignatz Leo Nascher in 1909



- ❑ The branch concerned with the diagnosis, treatment and prevention of disease in older people and the problems specific to aging.

Gerontology

- Gerontology is the study of aging and older adults



Comes from the word “geron” which means “aging” and logos, which means “knowledge.”



Relatively new field of study – last 50 years

Ways Aging can be Described and Studied

- ❑ Chronological – number of years lived
- ❑ Bureaucratic – eligibility for social programs or services
- ❑ Functioning – mobility, ability to care for oneself, and overall health.
- ❑ Social – roles and relationships in the social structure as people age.
- ❑ Biological – physical changes to organs and cells
- ❑ Psychological – sensory and mental functioning, personality, attitude and coping.
- ❑ Demographic – the trends in the overall and aging population.

Branches of Gerontology

- ❑ Biogerontology
- ❑ Biomedical gerontology
- ❑ Medical gerontology
- ❑ Social gerontology

Gerontology encompasses



Studying the physical, mental and social changes in people (adults) as they age



Investigating the ageing process itself (biogerontology)



Investigating the interface of normal ageing and age related diseases (geroscience)



Investigating the effects of our ageing population on our society; including the fiscal effects of pensions, entitlements, life and health insurance and retirement planning



Applying knowledge to policies and programmes; including a macroscopic perspective i.e. (running a nursing home)

Geriatric Age Group

- ❑ Young Old (60-69 yrs)
- ❑ Middle Old (70-79 yrs)
- ❑ Old Old (>80 yrs)

Who is a Geriatrician/Elderly Care Specialist

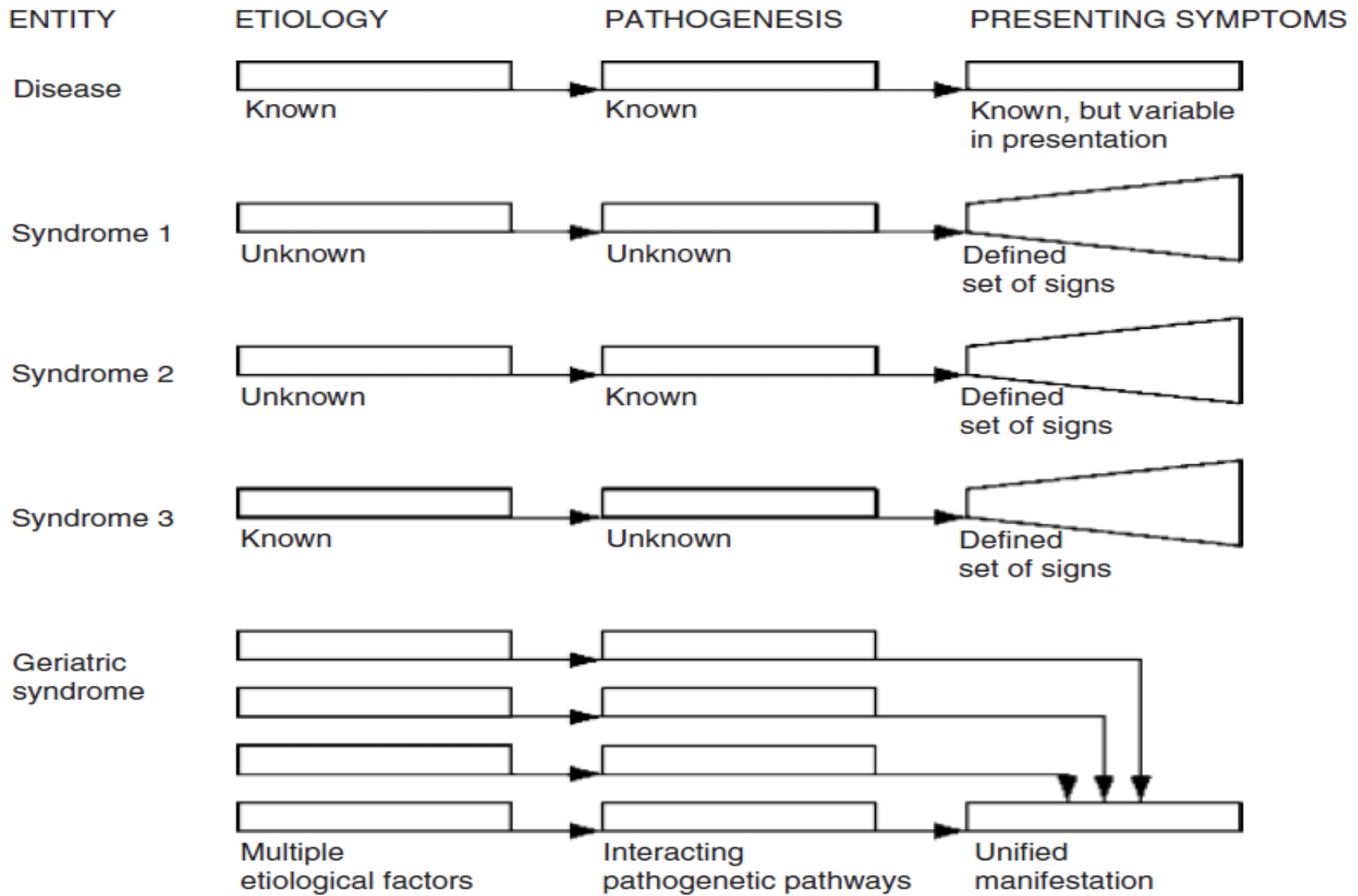
- ❑ A doctor who is specially trained to evaluate and manage the unique healthcare needs and treatment preferences of older people

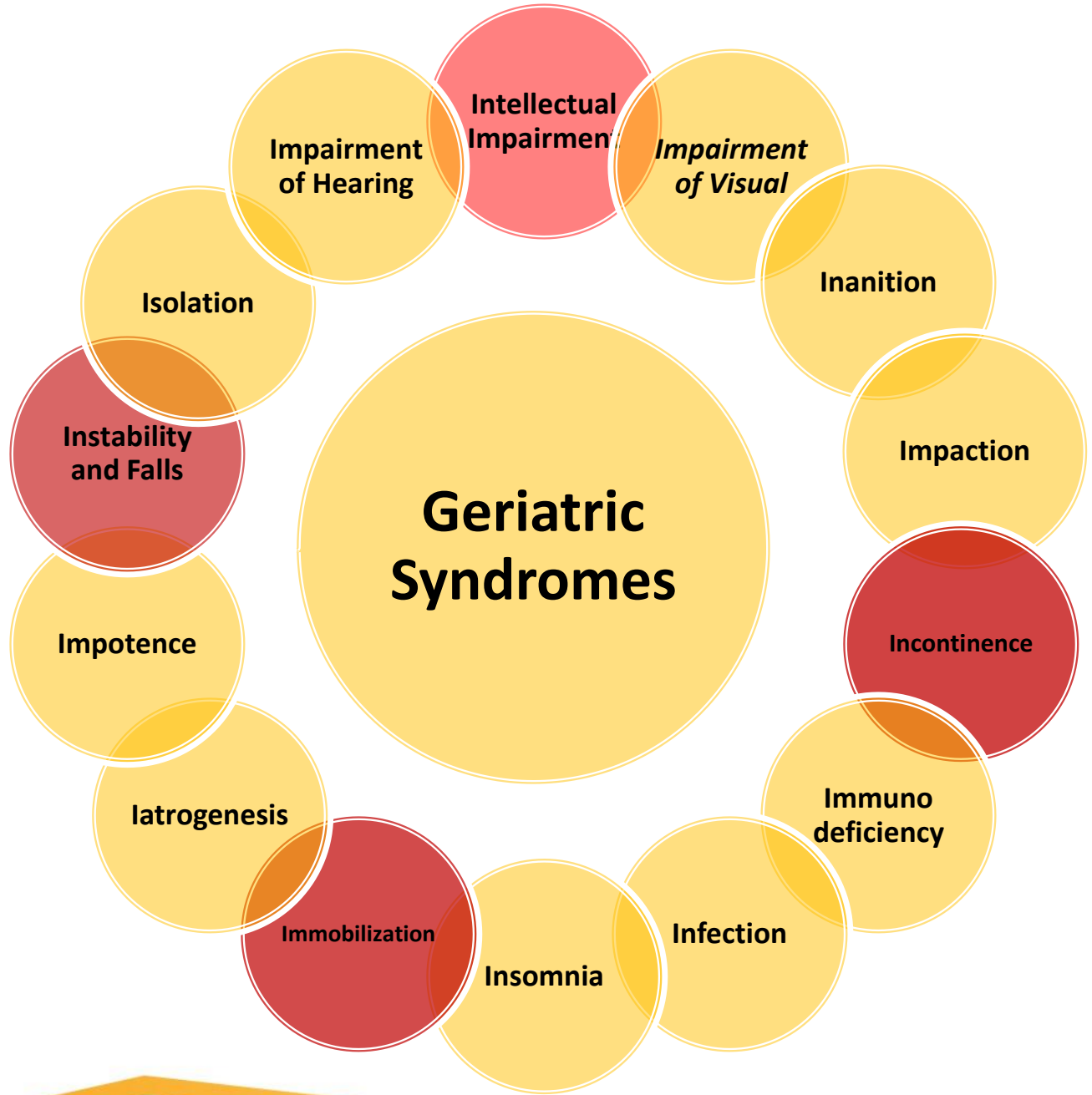


Geriatric Syndromes

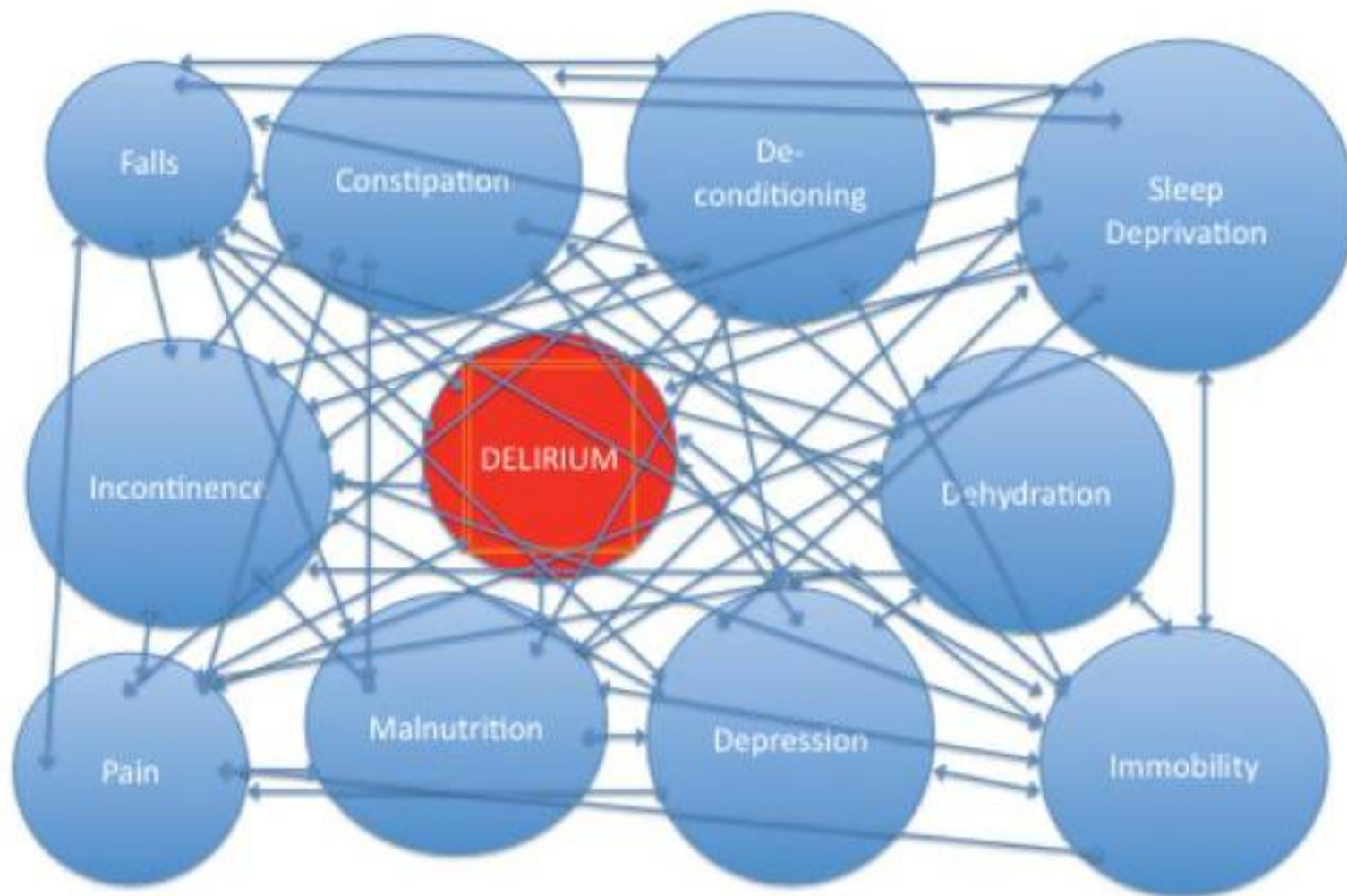
Geriatric Syndromes

- ❑ A multifactorial condition that involves the interaction between identifiable situation specific stressors and underlying age related risk factors , resulting in damage across multiple organ systems.





Geriatric Vicious Circles





Delirium



Dementia



Depression



Falls



Urinary Incontinence



Pressure sore



Frailty



Malnutrition

Geriatric Syndromes



Why are we worried ?



Quality of life worsens



Increases disability



Triggers the Cascade of dependency

- Promoted multidisciplinary rehabilitation and holistic appreciation of elderly patients, and emphasized the economic, social, and moral problems associated with their care



Dr Marjory Warren

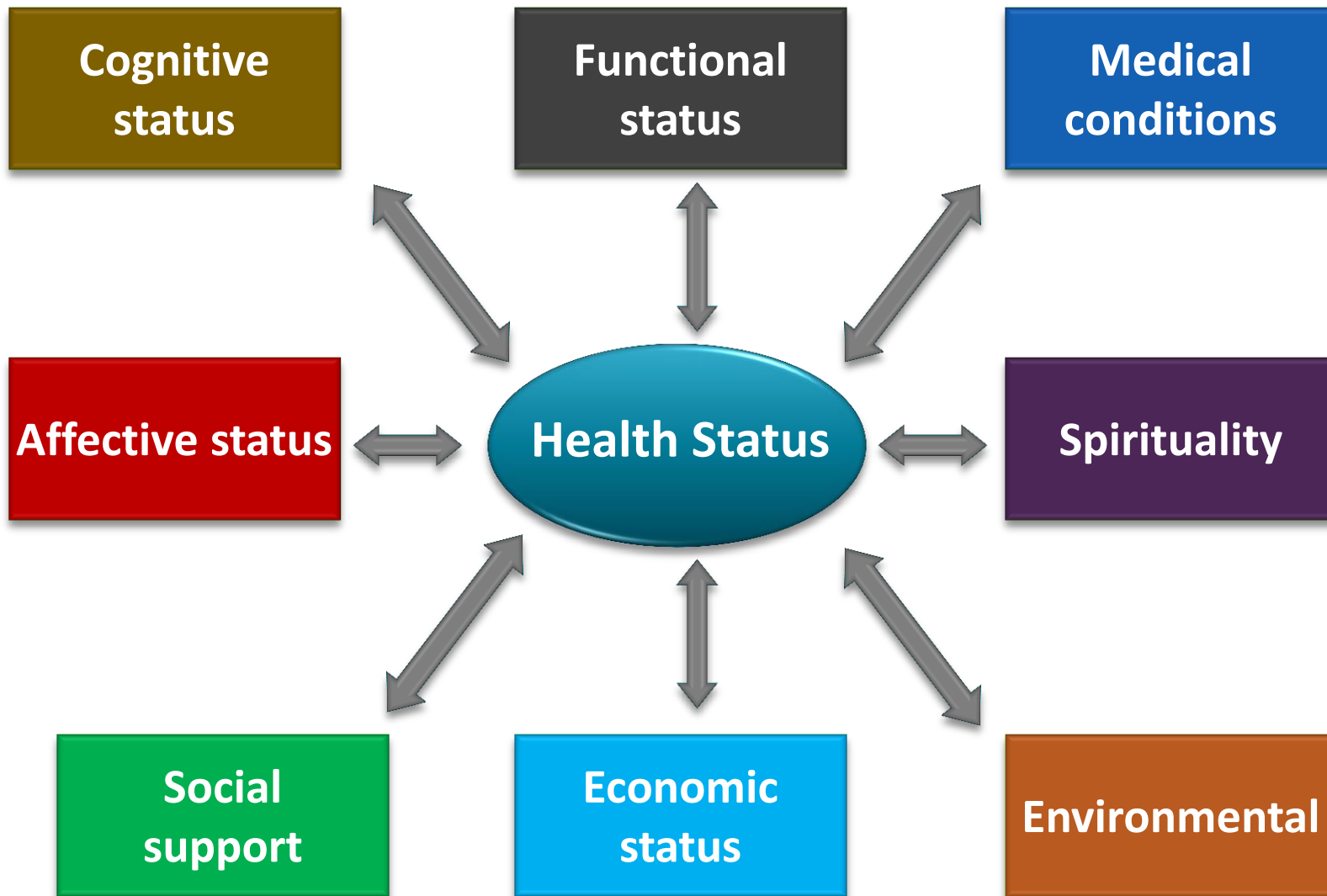
Postgrad Med J 2003;79:229–234

Geriatric Assessment

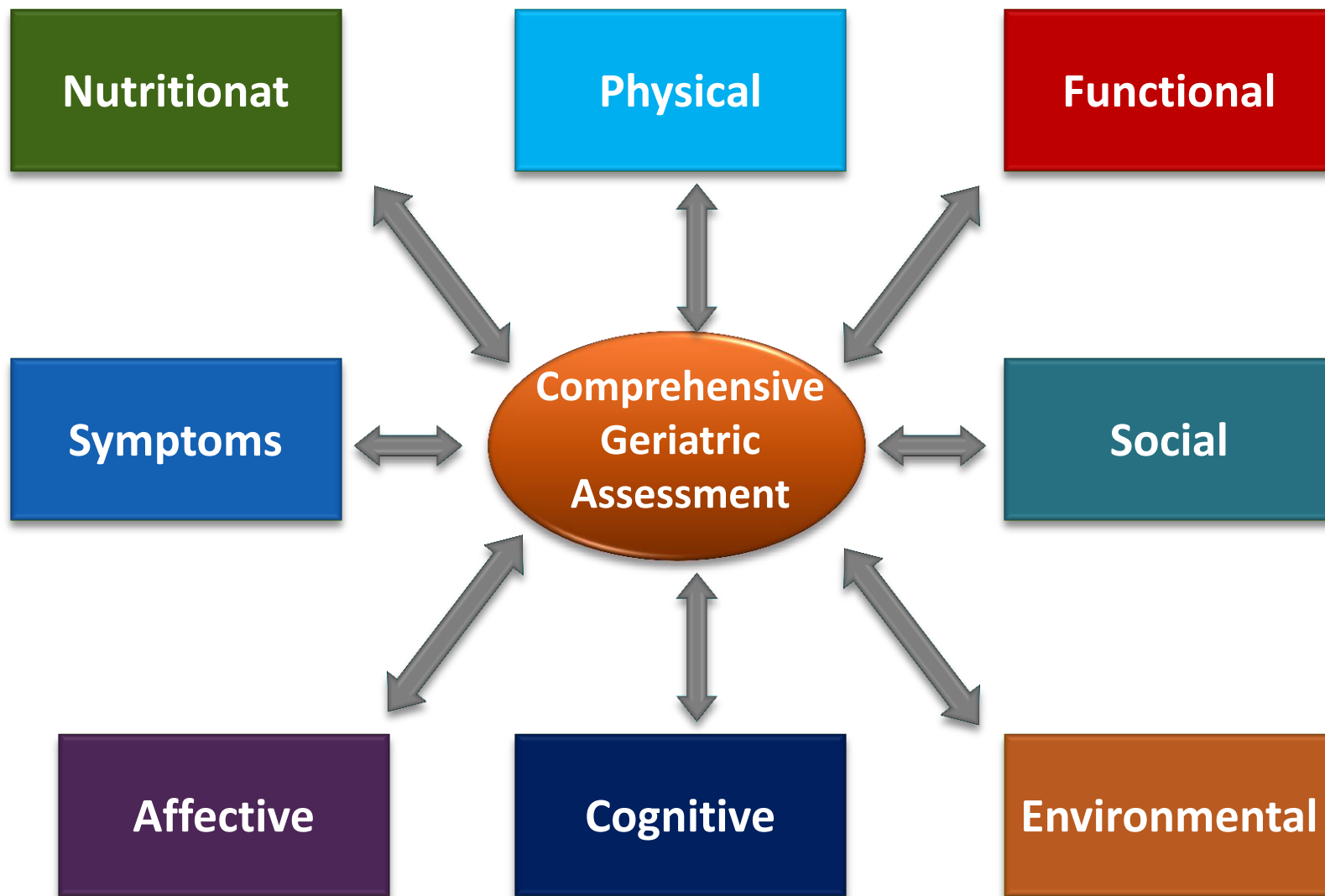
DEFINITION

Comprehensive geriatric assessment is defined as a **multidimensional interdisciplinary diagnostic process** that identifies **medical, psychosocial, and functional** limitations of a **frail older** person in order to develop a **coordinated and integrated plan for treatment** and long term follow up to maximize overall health with aging.

BMJ 2011;343:d6553



DOMAINS



WHY CGA??

- ❑ Older patients may have multiple problems, that *interact*
- ❑ Looks at *these interactions* (i.e. whole patient)
- ❑ Identifies current and potential problems

MULTIDISCIPLINARY TEAM

- Core team
 - Geriatrician
 - Nurse (Trained)
 - Social Worker



❑ Extended team

- Physical and Occupational therapists
- Nutritionists
- Pharmacists
- Psychiatrists / Psychologists
- Dentists
- Audiologists / Opticians
- Podiatrists
- Specialists specific to illness

A comprehensive geriatric assessment should always involve family members and caregivers, as appropriate

COMPONENTS/DOMAINS

- ❑ Medical assessment
- ❑ Functional capacity
- ❑ Social support
- ❑ Living situation
- ❑ Goals of care
- ❑ Fall risk
- ❑ Cognition
- ❑ Mood
- ❑ Polypharmacy
- ❑ Financial concerns
- ❑ Nutrition/weight change
- ❑ Urinary continence
- ❑ Sexual function
- ❑ Vision/hearing
- ❑ Dentition
- ❑ Spirituality

MEDICAL ASSESSMENT



- ❑ Varies with the setting
- ❑ **Problem List** of complex clinical issues with a prioritization
- ❑ Involving the patient and family
- ❑ Screening for asymptomatic conditions
- ❑ Assessing medication burden
- ❑ Comorbid conditions and disease severity

Focused Geriatric Physical Examination

Signs	Physical sign or symptom	Differential diagnoses
Vital signs		
Blood pressure	Hypertension Orthostatic hypotension	Adverse effects from medication, autonomic dysfunction Adverse effects from medication, atherosclerosis, coronary artery disease
Heart rate	Bradycardia Irregularly irregular heart rate	Atrial fibrillation
Respiratory rate	Increased respiratory rate greater than 24 breaths per minute	Chronic obstructive pulmonary disease, congestive heart failure, pneumonia
Temperature	Hyperthermia, hypothermia	Hyper- and hypothyroidism, infection

Focused Geriatric Physical Examination

Signs	Physical sign or symptom	Differential diagnoses
General	Unintentional weight loss Weight gain	Cancer, depression Adverse effects from congestive heart failure medication
Head	Asymmetric facial or extraocular muscle weakness or paralysis Frontal bossing Temporal artery tenderness	Bell palsy, stroke, transient ischemic attack Paget disease Temporal arteritis
Eyes	Eye pain Impairment visual acuity Loss of central vision Loss of peripheral vision Ocular lens opacification	Glaucoma, temporal arteritis Prebyopia Age-related macular degeneration Glaucoma, stroke Cataracts
Ears	Hearing loss	Acoustic neuroma, adverse effects from medication, cerumen impaction, faulty or ill-fitting hearing aids, Paget disease
Mouth, Throat	Gum or mouth sores Leukoplakia Xerostomia	Dental or periodontal disease, ill-fitting dentures Cancerous and precancerous lesions Age-related, Sjogren syndrome

Focused Geriatric Physical Examination

Signs	Physical sign or symptom	Differential diagnoses
Neck	Carotid bruits Thyroid enlargement and nodularity	Aortic stenosis, cerebrovascular disease Hyper and hypothyroidism
Cardiac	Fourth heart sound (S4) Systolic ejection, regurgitant murmurs	Left ventricular thickening Valvular arteriosclerosis
Pulmonary	Barrel chest Shortness of breath	Emphysema Asthma, cardiomyopathy, chronic obstruction pulmonary disease, congestive heart failure
Breasts	Masses	Cancer, fibroadenoma

Focused Geriatric Physical Examination

Signs	Physical sign or symptom	Differential diagnoses
Gastrointestinal, genital / rectal	<p>Atrophy of the vaginal mucosa constipation</p> <p>Fecal incontinence Prostate enlargement Prostate nodules Rectal mass, occult blood Urinary incontinence</p>	<p>Estrogen deficiency Adverse effects from medication, colorectal cancer, dehydration, hypothyroidism, inactivity, inadequate fiber intake</p> <p>Fecal impaction, rectal cancer, rectal prolapse</p> <p>Benign prostatic hypertrophy Prostate cancer Colorectal cancer Bladder or uterine prolapse, detrusor instability, estrogen deficiency</p>
Extremities	<p>Abnormalities of the feet Diminished or absent lower extremity pulses Heberden nodes Pedal edema</p>	<p>Bunions, onychomycosis Peripheral vascular disease, venous insufficiency Osteoarthritis Adverse effects from medication, congestive heart failure</p>

Focused Geriatric Physical Examination

Signs	Physical sign or symptom	Differential diagnoses
Muscular / Skeletal	<p>Diminished range of motion, pain</p> <p>Dorsal kyphosis, vertebral tenderness, back pain</p> <p>Gait disturbances</p> <p>Leg pain</p> <p>Muscle wasting</p> <p>Proximal muscle pain and weakness</p>	<p>Arthritis, failure</p> <p>Cancer, compression fracture, osteoporosis</p> <p>Adverse effects from medication, arthritis, deconditioning, foot abnormalities, Parkinson disease, stroke</p> <p>Intermittent claudication, neuropathy, osteoarthritis, radiculopathy, venous insufficiency</p> <p>Atrophy, malnutrition</p> <p>Polymyalgia rheumatica</p>
Skin	<p>Erythema, ulceration, over pressure points, unexplained bruises</p> <p>Premalignant or malignant lesions</p>	<p>Anticoagulant use, elder abuse, idiopathic thrombocytopenic purpura</p> <p>Actinic keratoses, basal cell carcinoma, malignant melanoma, pressure ulcer, squamous cell carcinoma</p>
Neurologic	Tremor with rigidity	Parkinson disease

Case Vignette

- ❑ 85 year old woman has uncontrolled hypertension on one blood pressure medication (170/90)
- ❑ Plan: Add a second blood pressure medication

□ 2 WEEKS LATER:



Assessment Tools



- ❑ BASIC ACTIVITIES OF DAILY LIVING (**BADLs**)
 - Self care tasks
- ❑ INSTRUMENTAL ACTIVITIES OF DAILY LIVING (**IADLs**)
 - Ability to maintain an independent household
- ❑ ADVANCED ACTIVITIES OF DAILY LIVING (**AADLs**)
 - Ability to fulfil societal, community, and family roles as well as participate in recreational or occupational tasks

The Lawton Instrumental Activities of Daily Living Scale

A. Ability to Use Telephone

1. Operates telephone on own initiative; looks up and dials numbers..... 1
2. Dials a few well-known numbers..... 1
3. Answers telephone, but does not dial..... 1

E. Laundry

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

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: _____

Advanced ADL (common AADL)

Participation in a meeting

Giving advice to family

Reading a newspaper

Shopping on special occasions

Socializing with others

Watching TV

Taking a walk

Care of a grandchild

* Hajime Takechi et al. Int J Alzheimers Dis. 2012

(Collin et al., 1988)

Environmental Assessment

Two dimensions

- ❑ Safety of the home environment
- ❑ Adequacy of the patient's access to needed personal and medical services

Social Assessment

- ❑ Availability of a personal support system
- ❑ Should include availability of help in case of emergency
- ❑ Living arrangement
- ❑ Relationship with (family, friends, neighbours)
- ❑ Social activities, hobbies, spiritual participation
- ❑ Need for a caregiver
- ❑ Caregiver burden
- ❑ Economic status

Abuse and Neglect

Helpful Questions

- S** - Do you feel Safe at home? What Stress do you feel in your relationship?
- A** - Do you feel Afraid or have you been Abused by any of your caregivers?
- F** - Are there any Family or Friends that you could ask for help or support?
- E** - Do you have a safe place to go in case of an Emergency? Is it an Emergency now?

Visual and Hearing Assessment

- ❑ Visual and Hearing impairment are common and often under-reported problem in the older population.

Cognitive Assessment




The prevalence of Alzheimer's disease, other dementias, and cognitive impairment, rises considerably with advancing age, the yield of screening for cognitive impairment increases with age



MMSE, MiniCOG

Picture 1 – Mini mental state examination (MMSE)

Temporal orientation (5 points)	What is the approximate time?
	What day of the week is it?
	What is the date today?
	What is the month?
	What is the year?
Spatial orientation (5 points)	Where are we now?
	What is this place?
	In what district are we or what is the address here?
	In which town are we?
	In which state are we?
Registration (3 points)	Repeat the following words: CAR, VASE, BRICK
Attention and calculation (5 points)	Subtract: $100-7 = 93-7 = 86-7 = 79-7 = 72-7 = 65$
Remote memory (3 points)	Can you remember the 3 words you have just said?
Naming 2 objects (2 points)	Watch and pen
REPEAT (1 point)	"NO IFS, ANDS OR BUTS"
Stage command (3 points)	"Take this piece of paper with your right hand, fold it in half, and put it on the floor"
Writing a complete sentence (1 point)	Write a sentence that makes sense
Reading and obey (1 point)	Close your eyes
Copy the diagram (1 point)	Copy two pentagons with an intersection
	

Fonte: Brucki SMD, Nitrini R, Caramelli P, Bertolucci PHF, Okamoto IH. Sugestões para o uso do mini-exame do estado mental no Brasil. Arq Neuropsiquiatr. 2003; 61(3B):777-81.

Affective Assessment

- ❑ A two question screener is easily administered and likely to identify patients at risk if both questions are answered affirmatively
- ❑ "During the past month, have you been bothered by feeling down, depressed or hopeless?"
- ❑ "During the past month, have you been bothered by little interest or pleasure in doing things?"

Screening instruments for late-life depression for use in primary care

	Sensitivity percent	Specificity percent	Inpatient	Outpatient	Physically ill	Cognitively impaired
Two-question screen	97	67	Unknown	Yes	Unknown	No
Geriatric Depression Scale (5-item)	94	81	Yes	Yes	Yes	Unknown
PHQ-9 (9-item)	88	88	Unknown	Yes	Yes	Unknown
Cornell Scale for Depression in Dementia (19-item)	90	75	Yes	Yes	Unknown	Yes
Center for Epidemiologic Studies - Depression Scale (20-item)	93	73	No	Yes	Unknown	No

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. 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
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns + +

(Healthcare professional: For interpretation of TOTAL, TOTAL: please refer to accompanying scoring card).

10. 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	_____

GDS- 5

Choose the best answer to describe how you have felt over the past week:

1. Are you basically satisfied with your life?	yes	no
2. Do you often get bored?	yes	no
3. Do you often feel helpless?	yes	no
4. Do you prefer to stay at home rather than going out and doing new things	yes	no
5. Do you feel pretty worthless the way you are now?	yes	no

Medication Review

Potentially Inappropriate Prescription (PIP)

- ❑ Overutilization (Polypharmacy)
- ❑ Prescription Cascade
- ❑ Underutilization (Potentially prescribing omissions)
 - Undiagnosed and untreated condition
 - Diagnosed condition but omitted treatment
 - Underuse of preventive treatment

Urinary Incontinence

Asking two questions can screen for incontinence:

- “In the last year, have you ever lost your urine and gotten wet?” and if so,
- “Have you lost urine on at least six separate days?”

Urinary Incontinence

Medical repercussions

- ❑ Decubitus ulcers
- ❑ Sepsis
- ❑ Renal failure
- ❑ Urinary tract infections
- ❑ Increased mortality

Social repercussions

- ❑ Loss of self-esteem
- ❑ Restriction of social and sexual activities, and
- ❑ Depression
- ❑ Key deciding factor for nursing home placement

Balance and Gait Assessment

- ❑ Patients who have fallen or have a gait or balance problem are at higher risk of another fall.
- ❑ The risk of falling can be assessed by asking all older patients if they have fallen in the last year, and then performing a multifactorial falls assessment by testing balance, gait, and lower extremity strength.

Simple tests of lower extremities: Strength, Balance, Gait and Fall Risk

QUESTION/TEST	TIME TO ADMINISTER	COMMENTS
Timed up and go	<1 minute	Sensitivity 88%, specificity 94% compared to geriatrician's evaluation using cutpoint > 15 s
Gait speed over 10 m	< 30 s	> 13 s predicts recurrent falls (Likelihood ratio: 2.0; 95% CI, 1.5–2.7)
Office-based maneuvers Observed gait Resistance to nudge Tandem/semitandem stand Rising from chair 360° turn	2–3 minutes	Some are part of performance-oriented assessment of mobility
Functional reach	2 minutes	Adjusted odds ratios for >2 falls within 6 mo 8.1 if unable to reach 4.0 if reach $\leq 6''$ 2.0 if reach $\geq 6''$ but <10''

Nutritional Assessment

- ❑ Both extremes of body weight place older people at risk for subsequent functional impairment, morbidity, and mortality
- ❑ Mini Nutritional Assessment

CASE – AFTER CGA

Comprehensive Geriatric Assessment

- ❑ 85 year old woman has uncontrolled hypertension on one blood pressure medication
 - Lives alone
 - Gait and balance abnormality
 - Osteoporosis
 - Incontinent of urine
 - Vision impairment
 - OTC meds
 - Difficulty with cleaning

Comprehensive Geriatric Assessment

- ❑ 85 year old woman has uncontrolled hypertension on one blood pressure medication
 - Lives alone (daughter will help with meds)
 - Gait and balance abnormality (home therapy)
 - Osteoporosis (treated)
 - Incontinent of urine (treated)
 - Vision impairment (fix or find glasses, ophtho. appt)
 - OTC meds (discard)
 - Difficulty with cleaning (Maid was kept also and eval fall risk)

Comprehensive Geriatric Assessment

- ❑ 85 year old woman had uncontrolled hypertension on one blood pressure medication (2nd visit):
 - Daughter came, helping with meds, BP fine
 - Gait and balance is better-no falls
 - No longer rushing to the bathroom (not incontinent)
 - Discussion about best options to keep her living independently

Rubenstein Trial

- ❑ Randomised control trial
- ❑ Frail elderly patients with high probability of nursing home placement
- ❑ Geriatric evaluation unit vs Usual Care
- ❑ Lower mortality(23.8 vs 48.3%)
- ❑ Lesser Nursing home admission(12.7 vs 30%)
- ❑ Improved functional status and Quality of life

Steps to Geriatric Assessment

- ❑ Get the History
- ❑ Medication Review
- ❑ Functional Inquiry
- ❑ Physical Examination
- ❑ Cognitive Testing
- ❑ Affective Testing
- ❑ Geriatric Syndromes Assessment
- ❑ Problem List
- ❑ Targeted Investigations
- ❑ Plan and follow up



Principles of CGA



Goal: Promote wellness, independence



Focus: Function, performance (gait, balance, transfers)



Scope: Physical, cognitive, psychologic, social domains



Approach: Multidisciplinary



Efficiency: Ability to perform rapid screens to identify target areas



Success: Maintaining or improving quality of life

Emory Big 10 Principles of Geriatrics

- ❑ Aging is not a disease.
- ❑ Medical conditions in geriatric patients are commonly chronic, multiple, and multifactorial.
- ❑ Reversible and treatable conditions are often underdiagnosed and undertreated in geriatric patients.
- ❑ Functional ability and quality of life are critical outcomes in the geriatric population.
- ❑ Social history, social support, and patient preferences are essential aspects of managing geriatric patients.
- ❑ Geriatric care is multidisciplinary.
- ❑ Cognitive and affective disorders are prevalent and commonly undiagnosed at early stages.
- ❑ Iatrogenic illnesses are common and many are preventable.
- ❑ Geriatric care is provided in a variety of settings ranging from the home to long-term care institutions.
- ❑ Ethical issues and end-of-life care are critical aspects of the practice of geriatrics.

Working with the Older Adults



A sense of humor



Patience



A willingness to listen and explore possibilities and not jump to conclusions



Working with families is a key part of what we do so some desire or interest in this would be important.



Like older people



One must enjoy trying to figure out the many complex biopsychosocial factors influencing psychiatric problems in an older person



Geriatric patients with psychiatric issues do in fact get better and can lead a more fulfilling and enjoyable life.



Families are also eternally grateful



Geriatrics is the one specialty in which you must understand and appreciate the interaction between medical illness, neurological disorders, medication side effects and psychiatric symptoms

Tips for Interviewing Older Adults

- ❑ The older adult may need **reassurance** that the stranger at the door is there to assist.
- ❑ **Slow down your speech.**
- ❑ Use **formal address** when referring to older adult.
- ❑ Be aware of **hearing and/or visual** deficits that may interfere with interview.
- ❑ Ensure **comfort** as much as possible.
- ❑ **Speak** with older adult **directly.**
- ❑ Be aware of **non-verbal cues** from client and Caregiver/caretaker

The Wheels of Life

