OPTUMHealth™
Education

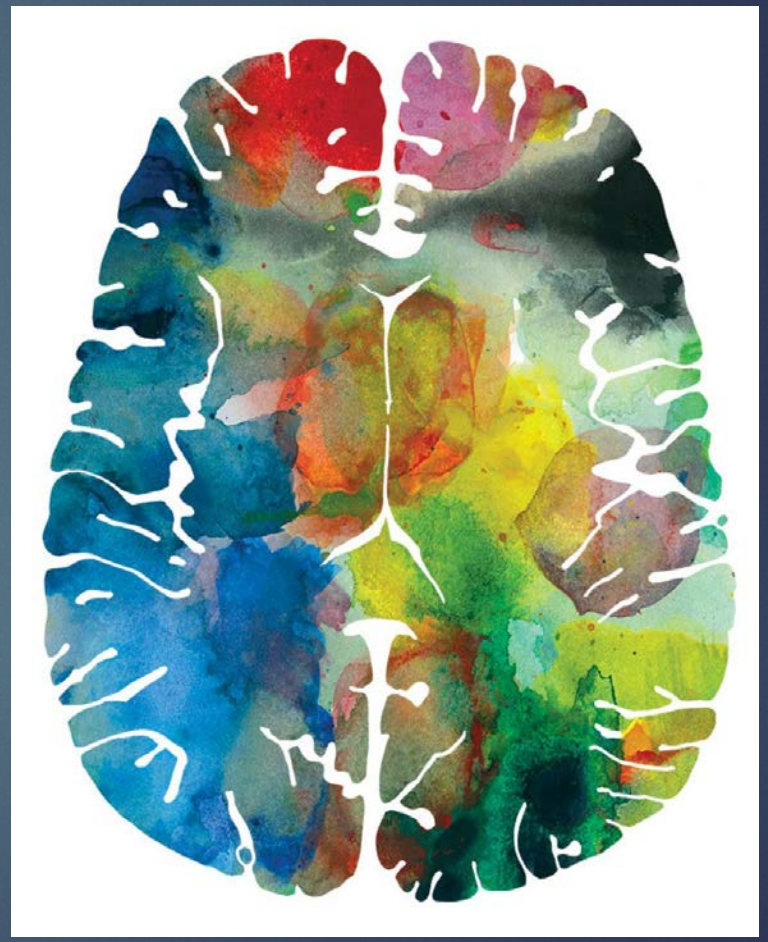
Diagnosing and Documenting Dementia

JULY 2019

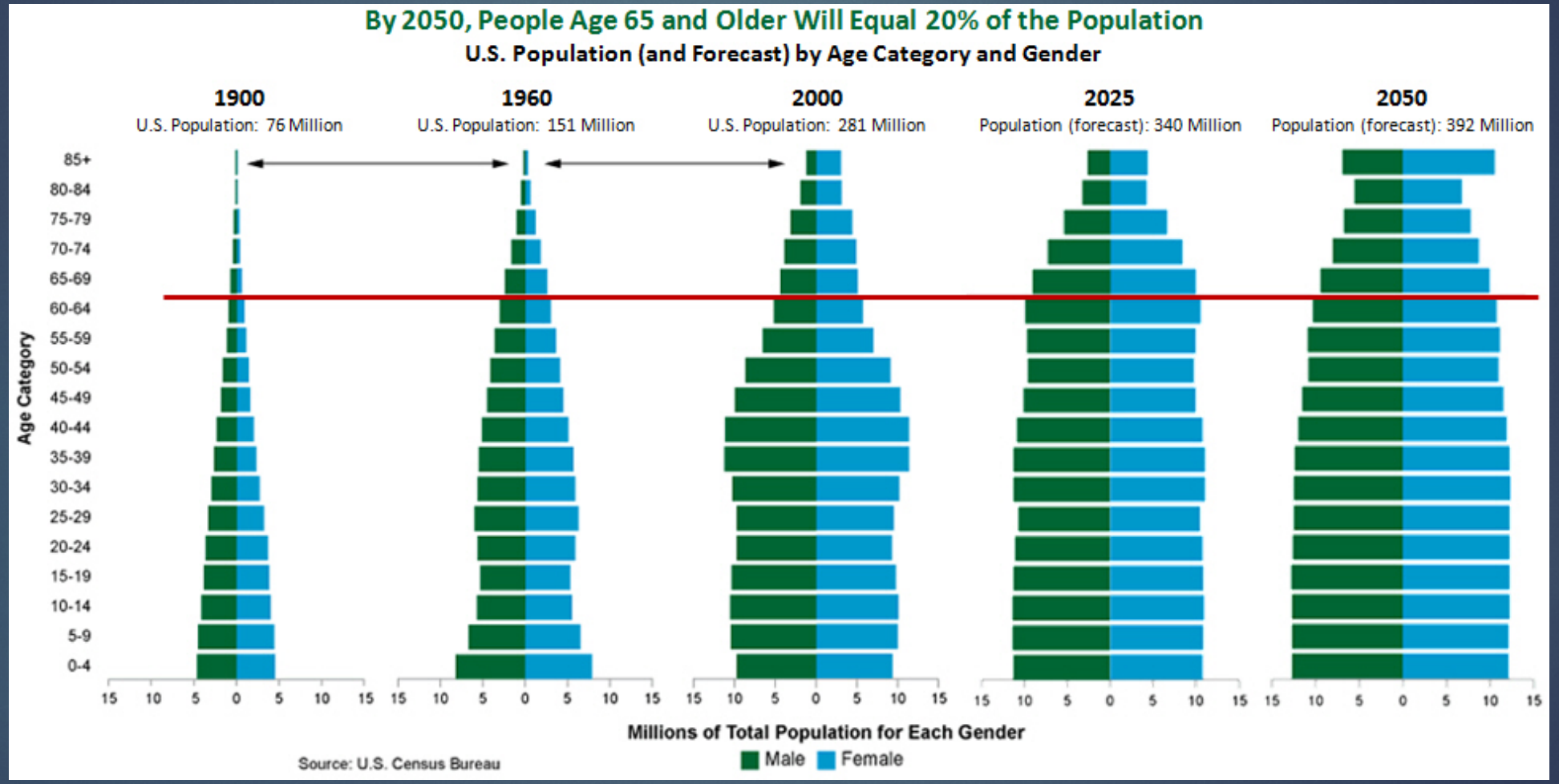
SETH M. KELLER, MD

Outline

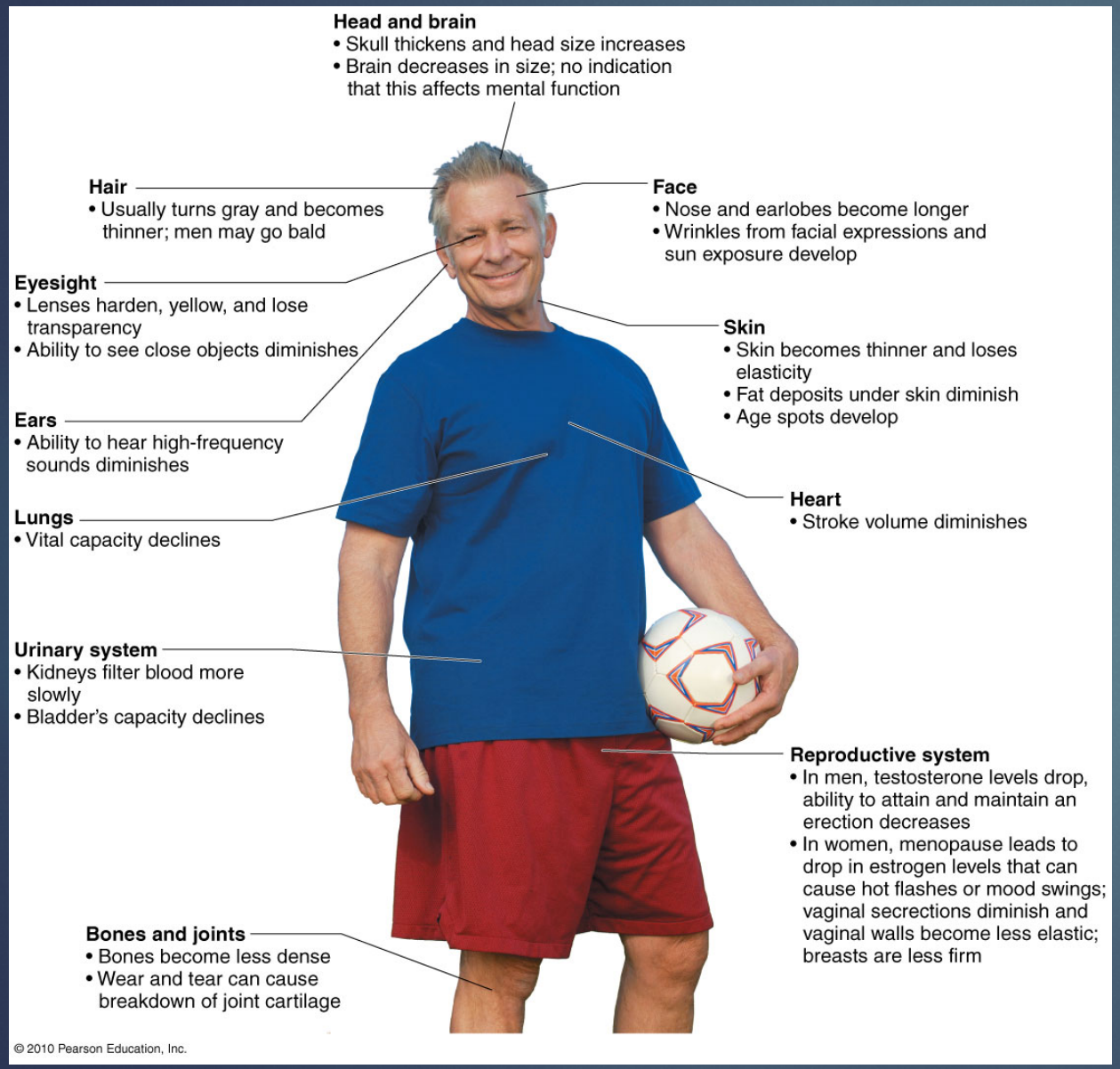
- Normal aging
- Dementia
- Assessment
- Cognitive and behavioral challenges
- Progression
- Caregiver concerns



Changing U.S. Population Demographics

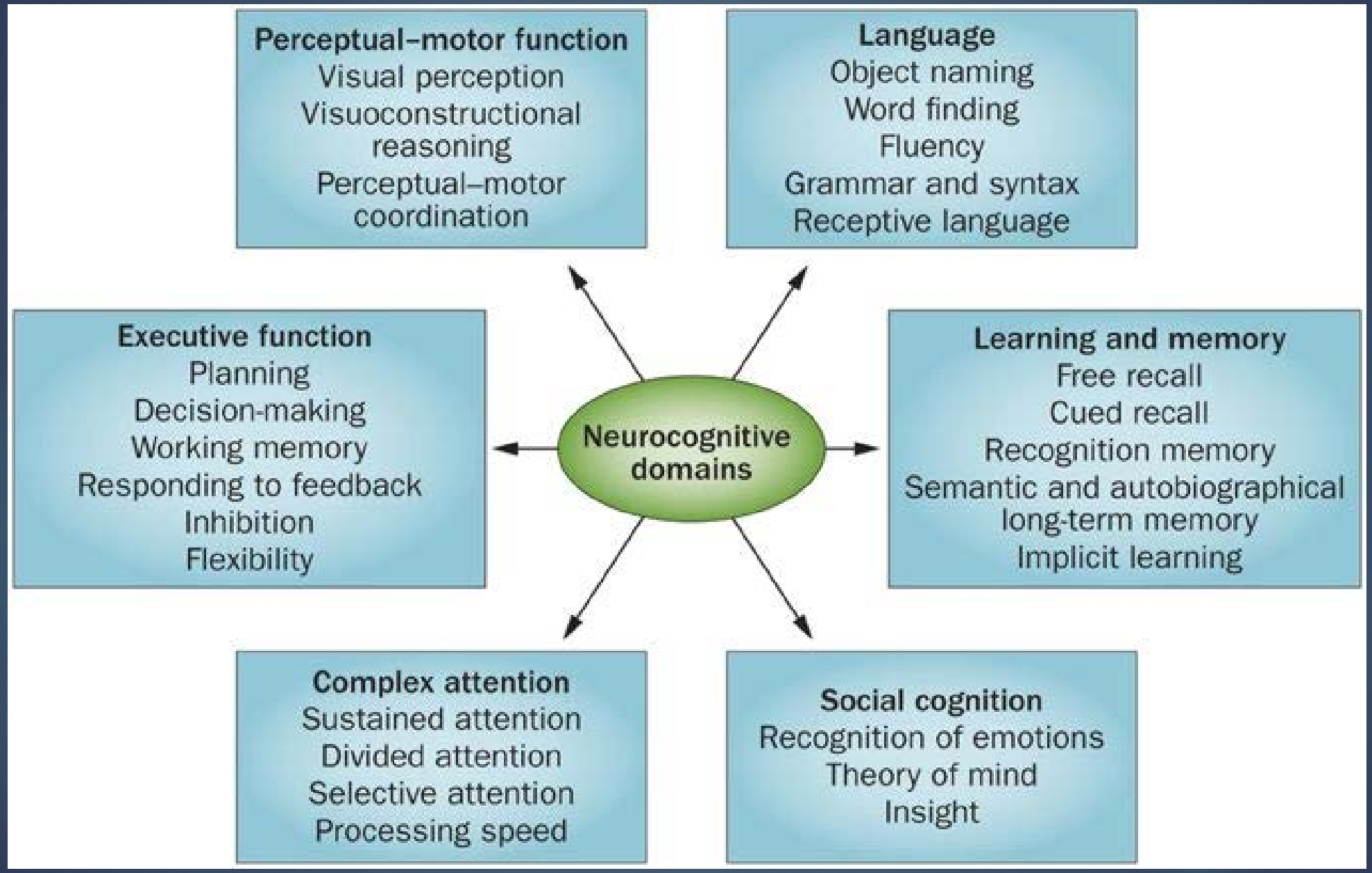


Normal Effects of Aging



Resilience is the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress — such as family and relationship problems, serious health problems or workplace and financial stressors. It means "bouncing back" from difficult experiences.

As people get older or develop chronic diseases like dementia, there's a narrowing (or stenosis) of reserve capacity; when something that used to be a nuisance suddenly becomes a major problem. This phenomenon has been called **homeostenosis**, which is a decreased ability to maintain homeostasis (balance) under stress.


Perceptual–motor function
Visual perception
Visuoconstructional reasoning
Perceptual–motor coordination
Language
Object naming
Word finding
Fluency
Grammar and syntax
Receptive language
Executive function
Planning
Decision-making
Working memory
Responding to feedback
Inhibition
Flexibility
Neurocognitive domains
Learning and memory
Free recall
Cued recall
Recognition memory
Semantic and autobiographical long-term memory
Implicit learning
Complex attention
Sustained attention
Divided attention
Selective attention
Processing speed
Social cognition
Recognition of emotions
Theory of mind
Insight

Age related structural changes - Neurology

- Reduced brain size
- Reduced nerve cells
- Decreased cerebral blood flow
- Slower nerve conduction velocity resulting in slower reflexes and delayed response to stimuli

Source: radiology assistant. Alzheimer Centre and Image Analysis Centre, Vrije Universiteit Medical Center, Amsterdam and the Rijnland Hospital, Leiderdorp, The Netherlands

Age Related Cognitive Changes

- Personality is unchanged
  - But may be expressed more openly
- Intelligence is unchanged
  - Crystallized intelligence
    - Ability to use skills, knowledge, and experience
  - Fluid intelligence or fluid reasoning
    - Capacity to think logically and solve problems in novel situations
    - Independent of acquired knowledge
- **Early phases of learning are more difficult**
- **Working memory is reduced**

Anne Vanderbilt, MSN, CNS, CNP
http://www.clevelandclinicmeded.com/live/owork/US-State-2014/RNPres2014/Vanderbiltneurodegeneraton.pdf

Cleveland Clinic

Cognitive Changes with Aging

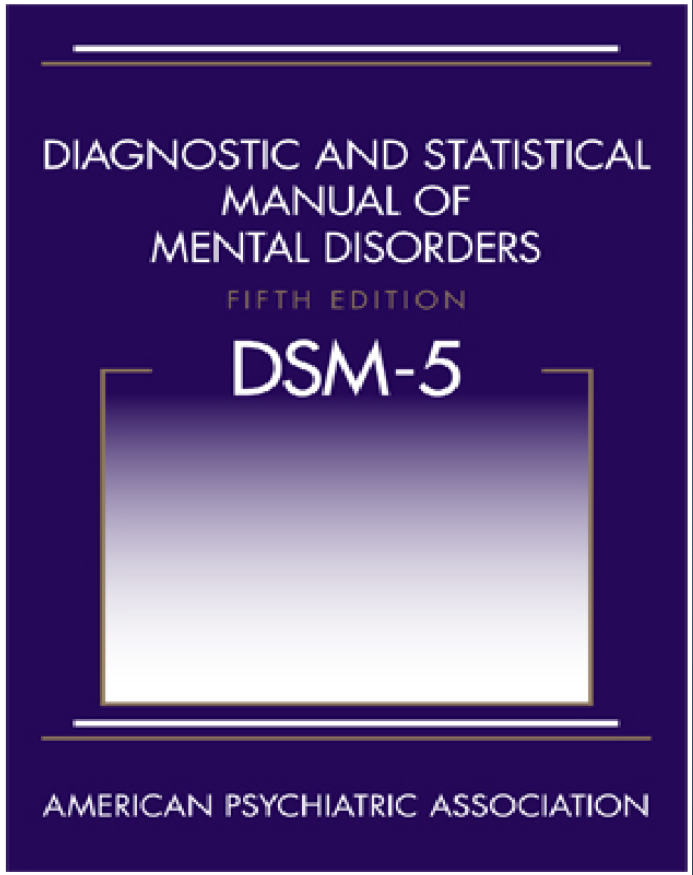
- Normal changes = **more forgetful & slower to learn**
- Mild Cognitive Impairment (MCI) = Immediate recall, word finding, or complex problem solving problems (half of these folks will develop dementia within 5 yrs.)
- Dementia = **Chronic thinking problems in > 2 areas**
- Delirium = **Rapid changes in thinking & alertness**
- Depression **= *Chronic unless treated, poor quality of life, "I don't know" and/or "I just can't" responses, no pleasure,*** *can look like agitation & confusion*

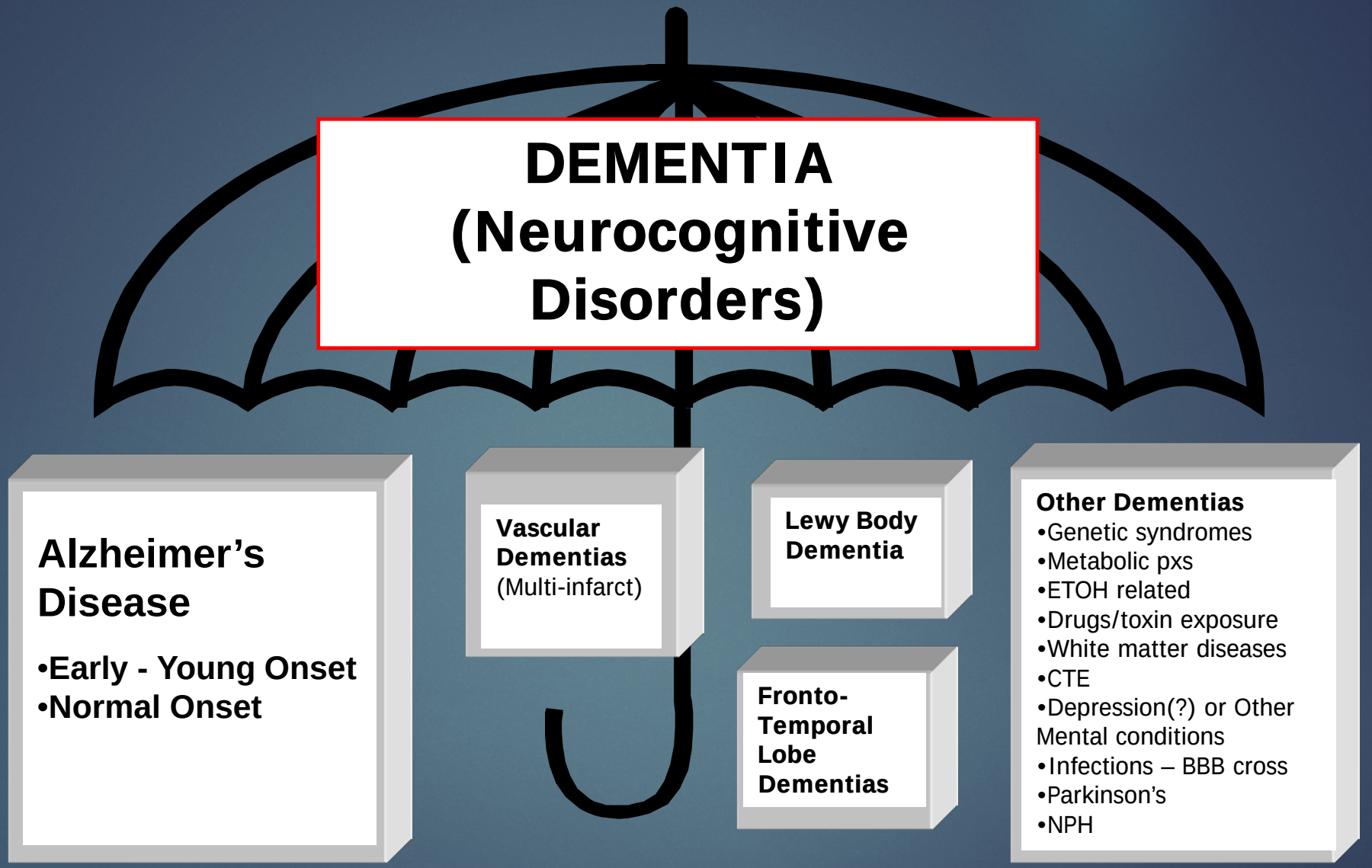
DSM 5 – Criteria for Neurocognitive Disorders

Mild or Major

- No longer use the term “Dementia”
- Memory loss is no longer a requirement for diagnosis

1. Cognitive decline from a previous level of performance in one or more of domains
2. Deficits in testing or equivalent clinical evaluation
3. The cognitive deficits are sufficient to interfere with independence
4. The cognitive deficits do not occur exclusively in the context of a delirium.
5. The cognitive deficits are not primarily attributable to another mental disorder




DEMENTIA (Neurocognitive Disorders)
Alzheimer's Disease
•Early - Young Onset
•Normal Onset
Vascular Dementias (Multi-infarct)
Lewy Body Dementia
Fronto-Temporal Lobe Dementias
Other Dementias
•Genetic syndromes
•Metabolic pxs
•ETOH related
•Drugs/toxin exposure
•White matter diseases
•CTE
•Depression(?) or Other Mental conditions
•Infections – BBB cross
•Parkinson's
•NPH

The Diagnosis of Dementia

- An acquired syndrome consisting of a decline in memory and other realms of cognitive functioning
- At least one of the following deficits
  - Language difficulties (aphasia)
  - Difficulty with common tasks (apraxia)
  - Unable to identify common objects (agnosia)
  - Disturbance in executive functioning
    - Planning, judgment, decision making

Source: *Diagnostic and Statistical Manual of Mental Disorders.* DSM-IV

AD comparison to VD and FTD

Medscape® www.medscape.com

Clinical features	FTD	AD
Age at onset	Rarely > 75 years	Increases markedly with age
Early behavioural problems	Common	Unusual
Socially inappropriate behaviours	Common early in the course	Usually in severe case
Memory impairment	Less prominent in early course	Early and profound impairment
Language problems	May have isolated language problems without memory impairment (in progressive nonfluent aphasia type)	Usually associated with memory impairment
Visuospatial defect	Rare in mild to moderately impaired case	Common
Motor signs	More common (in FTD with motor neuron disease)	Less common
Mood	Marked irritability, anhedonia, withdrawal, alexithymia (difficulties in understanding, processing, or describing emotions), euphoria, lack of guilty, apathy or suicidal ideation	Sadness, tears, anhedonia, apathy, guilt
Psychotic features	Rare persecutory delusion, usually jealous, somatic, religious, and bizarre behaviours	Usually have delusion of misidentification or persecutory type and usually occur in middle or late stage
Appetite, dietary change	Increased appetite, carbohydrate craving 80%, weight gain	Less common: anorexia and weight loss

Source: McKhann MG, et al. 2001;[15] Muangpaisan W, et al. 2003;[16] Muangpaisan W, et al. 2005;[18] Gregory CA, et al. 1996;[21] Mendez M, et al. 1993.[22]

Source: Geriatrics Aging © 2007 1453987 Ontorio, Ltd.

Medscape® www.medscape.com

Clinical features	Vascular Dementia	Alzheimer's Disease
History of atherosclerotic diseases	Transient ischemic attack, strokes, atherosclerotic risk factors e.g., diabetes mellitus, hypertension	Less common
Onset	Sudden or gradual	Gradual
Progression	Slow or stepwise progression	Slow, progressive decline
Neurological examination	Neurological deficits	Normal
Gait	Often disturbed early	Usually normal
Memory	Mild impairment in early phase	Prominent in early phase
Executive function	Marked impairment and early	Impaired later
Type of dementia	Subcortical	Cortical
Hachinski Ischemic Score	≥ 7	≤ 4
Neuroimaging	Infarction or white matter lesions	Normal or hippocampal atrophy

Source: Roman GC, 2003;[11] Muangpaisan W et al., 2005.[18]

Source: Geriatrics Aging © 2007 1453987 Ontorio, Ltd.

AD comparison to PD and LBD

Signs of disease	*Alzheimer's disease*	*Dementia with Lewy bodies*	*Parkinson's disease*
Clinical signs			
Dementia	Early impairment of memory and attention	Early disturbance in attention and visual perception	No early impairment
Delirium	Occasional	Typical	Rare
Visual hallucinations	Occasional	Typical	Occasional
Delusions	Typical	Typical	Occasional
Parkinsonism	Rare	Within one year of onset of dementia	First manifestation
Autonomic dysfunction	Rare	Typical	Typical
Rigor	Occasional	Typical	Typical
Bradykinesia	Occasional	Typical	Typical
Tremor	Rare	Occasional	Typical
Pathologic signs			
Neuritic plaques	Typical	Typical	Rare
Neurofibrillary tangles	Typical	Occasional	Rare
Cortical Lewy bodies	Rare	Typical	Occasional
Subcortical Lewy bodies	Rare	Typical	Typical
Biochemical signs			
Cholinergic deficit	Typical	Typical	Occasional
Dopaminergic deficit	Rare	Typical	Typical

Assessments

- Diagnostics
- Therapeutics
- Disease progression
- Caregiver concerns
- Financial
- Hospital care

Cognitive Assessment Tools

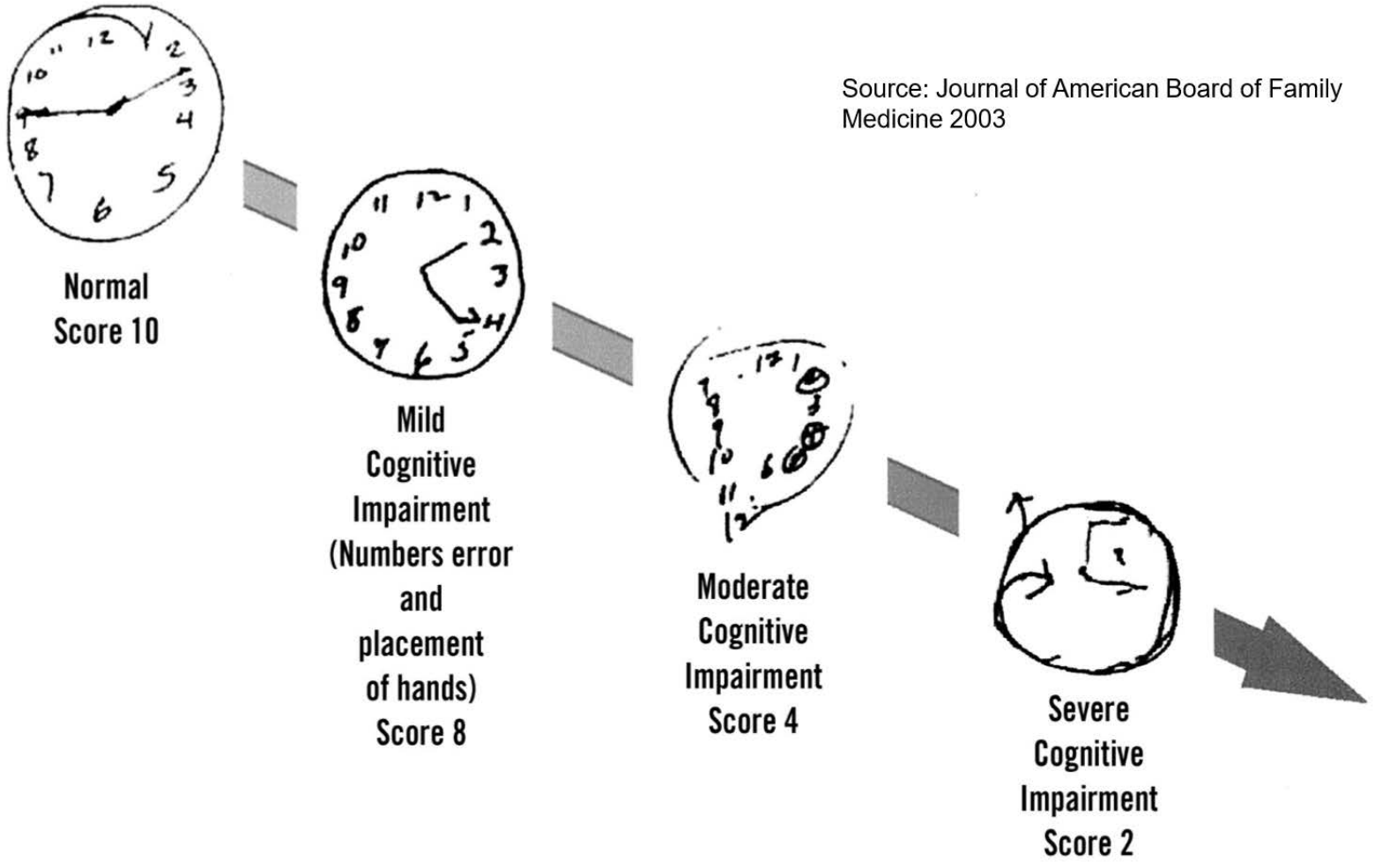
TABLE 2. Co

Test	S	
MMSE	1	English
Mini Cog	3	inister[2]
CDT	1	
SLUMS	3	main[4]
MoCA	F 8	lity and
AMT	1	data[5]
RUDAS	6	rning

MMSE, Mini Menta
Test; RUDAS, Row

ated Mental

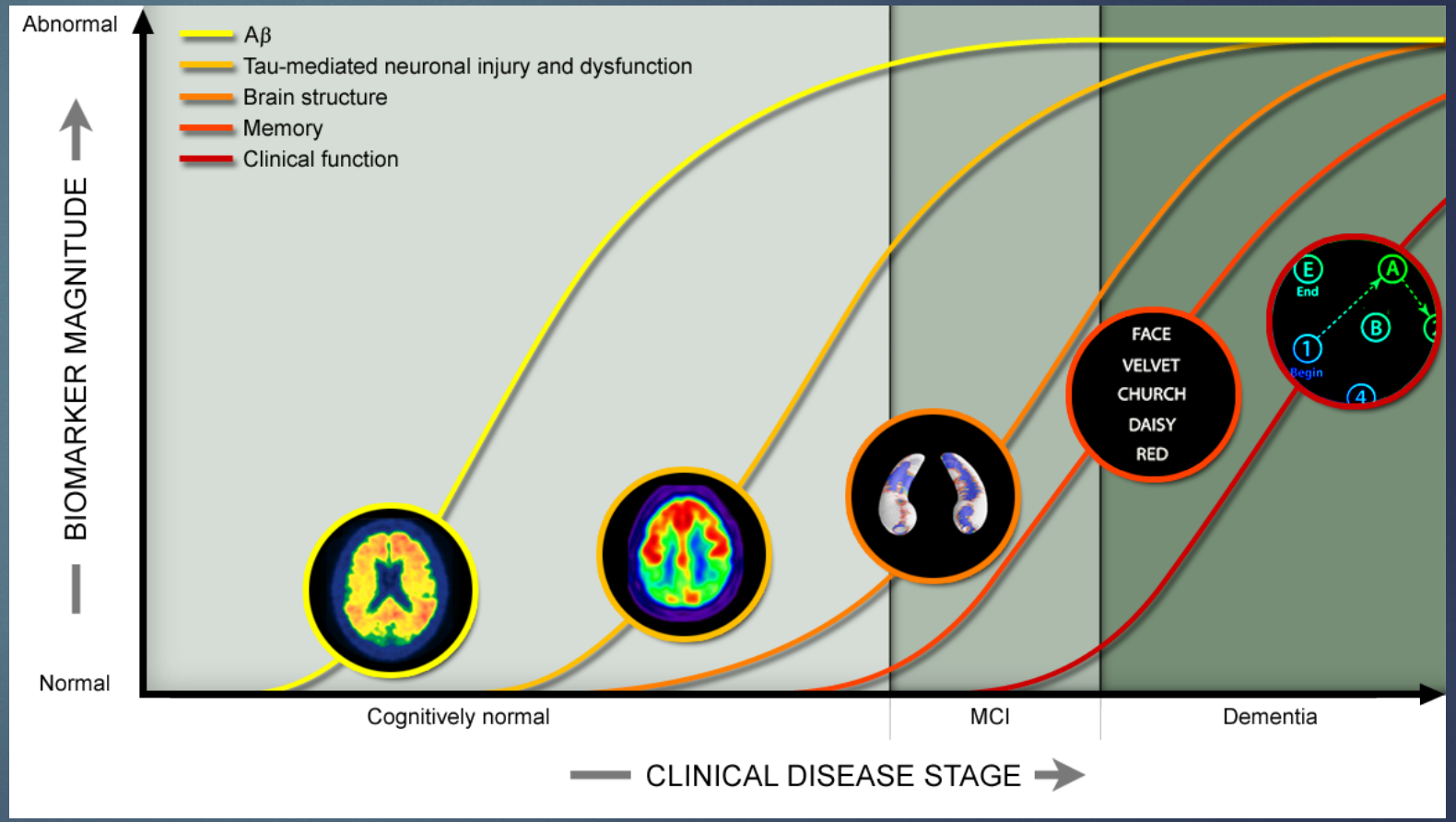
Clock Draw Test



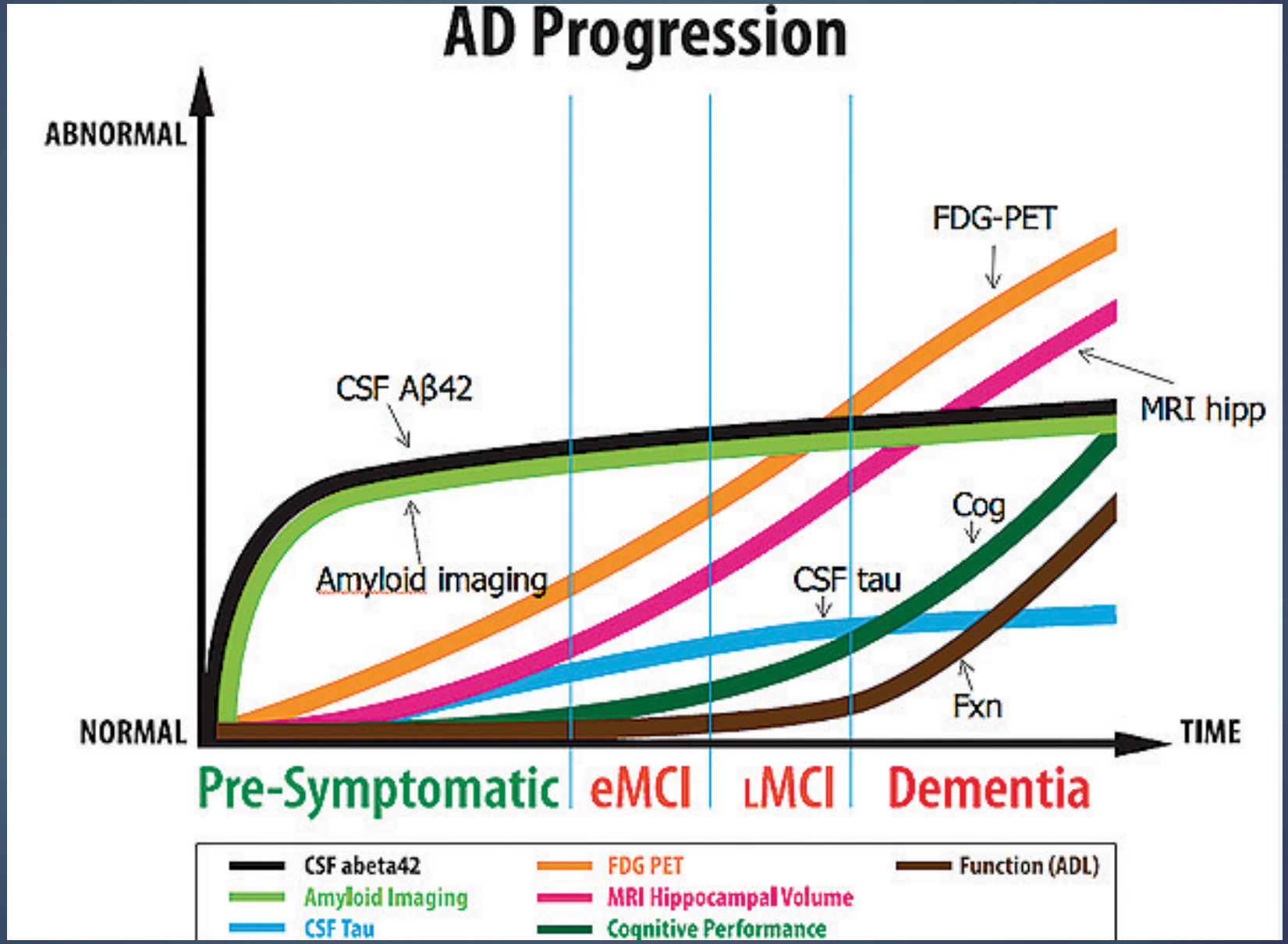
Source: Journal of American Board of Family Medicine 2003

Diagnostic Accuracy

- History of current difficulties
- Neuropsychological testing
- Physical exam
- Family and social history
- Blood testing
- EEG
- Brain Imaging
- Biomarkers

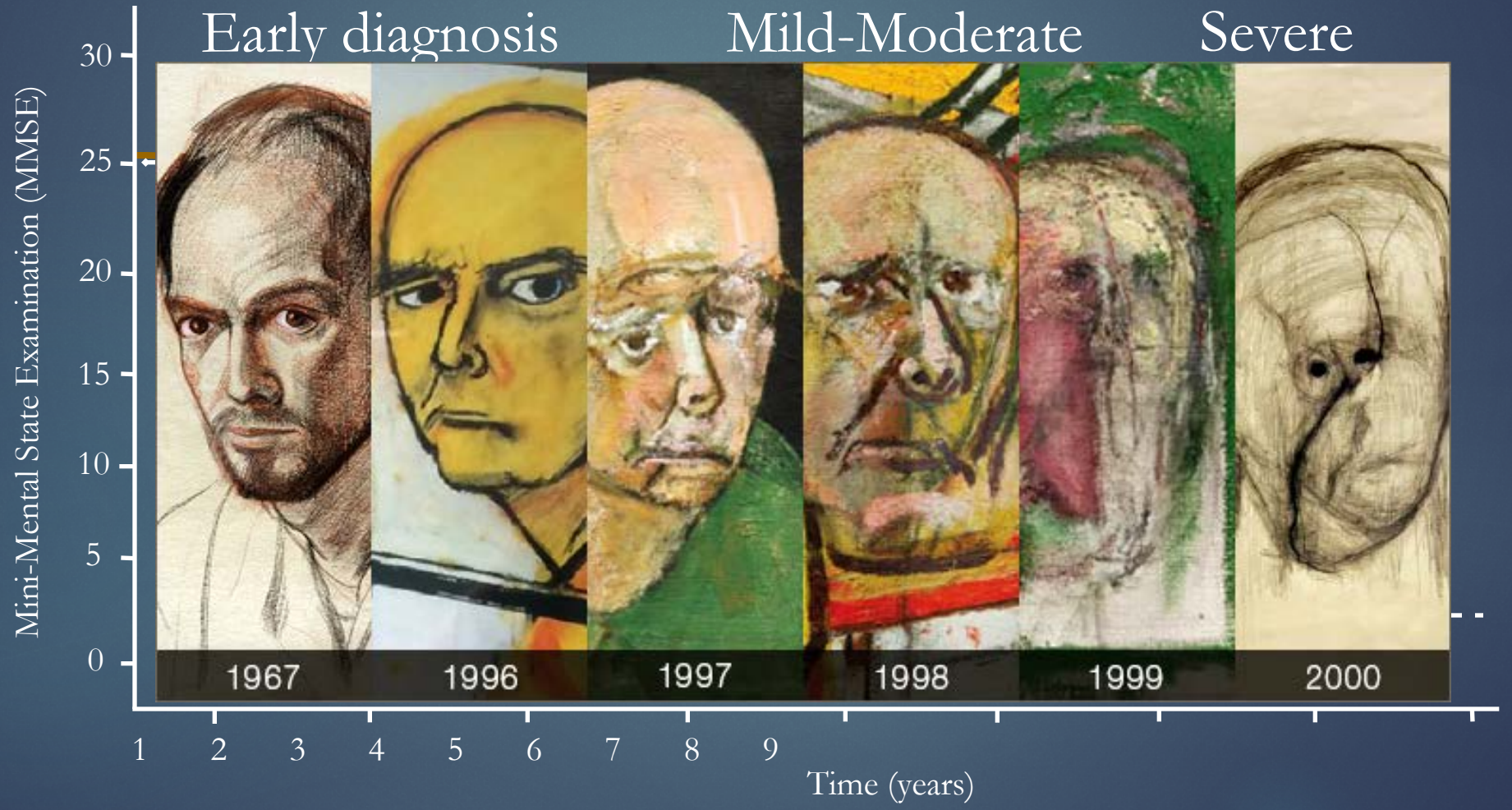


Alzheimer's Disease Biomarkers



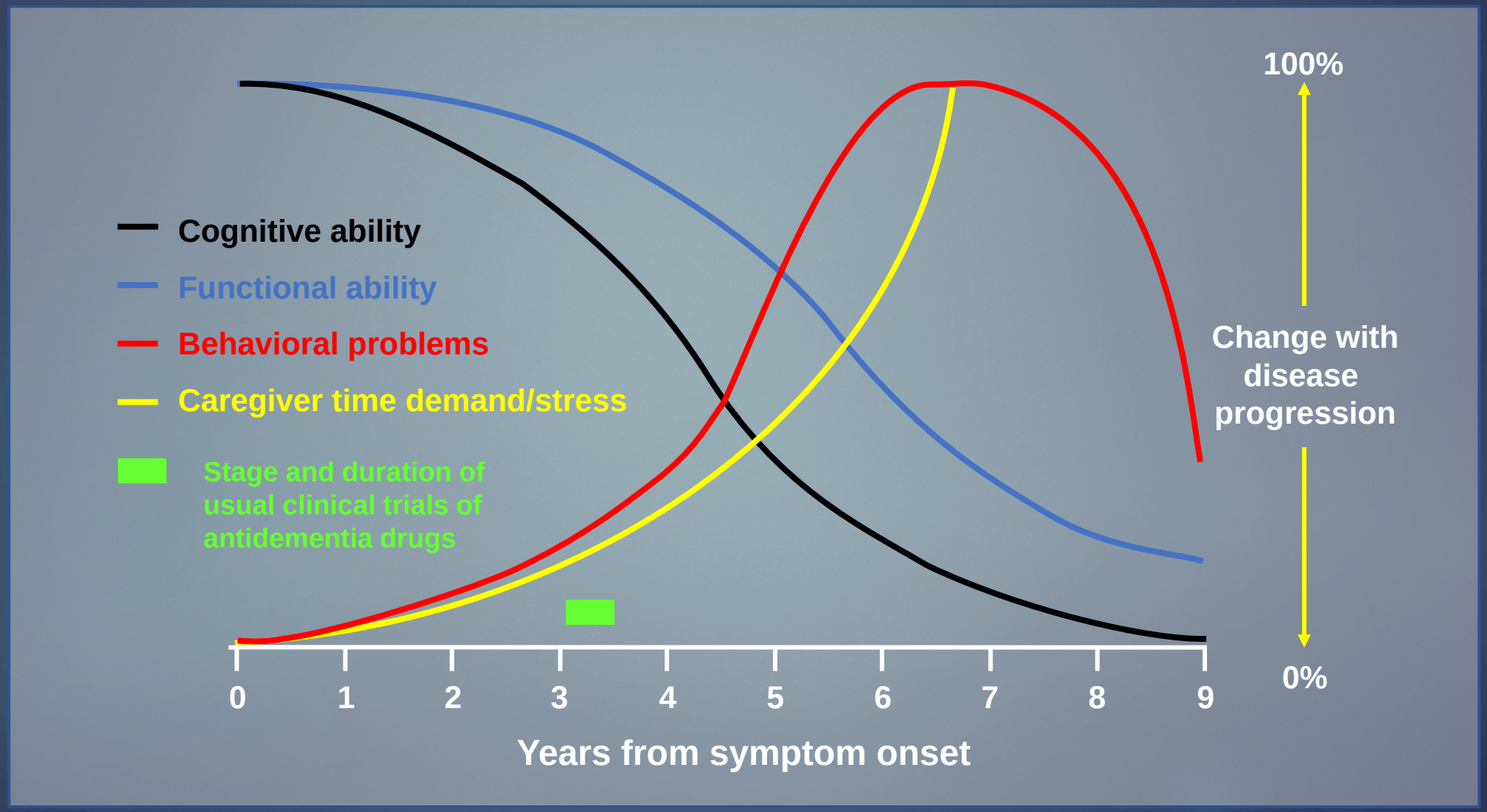
Natural history of Alzheimer's Disease

William Utermohlen



Feldman and Gracon. The Natural History of Alzheimer's Disease. London: Martin Dunitz, 1996

Problems Peak at Different Times in the Course of AD



Facts about Caregivers of People with Alzheimer's Disease

- 70% of people with Alzheimer's disease in the U.S. are cared for at home
- 9.8 million family members, friends and neighbors in the U.S. provided unpaid care for a person with Alzheimer's disease or another dementia
  - 51% are 50+ years old
  - 60% female (primarily spouses, daughters and daughters-in-law)
- Economic value of the care provided by informal caregivers of people with AD and other dementias in the U.S. in 2007 was $89 billion

Alzheimer's Association: 2008 Alzheimer's Disease Facts and Figures

Impact on Families and Caregivers

Frequent issues experienced by families and caregivers include:

- Denial
- Anger / Frustration
- Guilt
- Loss and Grief
- Letting Go
- Financial Stress
- Role Reversals
- Social Isolation
- Becoming Patients Themselves

MEDICATIONS IN DEMENTIA

SYMPTOMS

- **COGNITION**
  - Memory, language, orientation, judgment, planning.
- **BEHAVIOR**
  - Depression, anxiety, agitation, hallucinations, paranoia, aggressiveness.
- **OTHER**
  - Weight loss, incontinence, gait disturbances, sleep disturbances

Changes in Behavior

- What is expected? What is not?
- Diagnostic overshadowing
- Toxic/metabolic concerns
- Pain
- Abuse/neglect
- Behavioral and Psychological Symptoms of Dementia (BPSD)
- Trusting the data

Behavioral and Psychological Symptoms of Dementia (BPSD)

- Depression—40%
- Delusions—63%
- Hallucinations—4-41%
- Aggression—31-42%
- Apathy
- Pseudobulbar Affect
- Sleep disturbance (day/night reversal)
- Hoarding
- Shadowing
- Disinhibition (stripping)
- Sexually inappropriate behavior
- Sundowning
- Wandering

Associated with worsening prognosis

More rapid cognitive decline

Increased caregiver burden

Leads to earlier admission to institutional care

Increased healthcare cost

Nonpharmacological Approaches

- Familiar environment—avoid frequent moves
- Soft lighting
- Calm colors
- Places to walk
- Access to outdoor spaces
- Home-like environment
- Low stimuli—minimize background noise
- Time out space
- Reminiscing
- Individualized care planning
- Careful analysis of care interactions
- Meaningful activity
- Art/Music therapy
- Exercise/Movement
- Snoezelen® (multisensory stimulation program)
- Aromatherapy
- Yoga

Common Triggers

- Physical
  - Acute illness/infection, medications, pain, poor vision, poor hearing, poor sleep
- Cognitive
  - Inability to understand, express oneself, lack of insight, misinterpretation of environment, difficult to problem solve
- Emotional
  - Fear, anxiety, depression, frustration, apathy, boredom
- Environmental
  - Changes in caregiver, confrontational approach, tasks that exceed abilities, change in routine, over/understimulation, lack of visual cues

Questions to be Answered in Evaluating Medication Use

- What is the target problem being treated?
- Is the drug necessary?
- Are nonpharmacologic therapies available?
- Is this the lowest practical dose?
- Does this drug have adverse effects that are more likely to occur in an older patient?
- By what criteria, and at what time, will the effects of therapy be assessed?
- Safety of the medication

Drug use in the nursing home
Avorn J, Gurwitz JH. Ann Intern Med. 1995 Aug 1;123(3):195-204

MEDICATIONS IN DEMENTIA

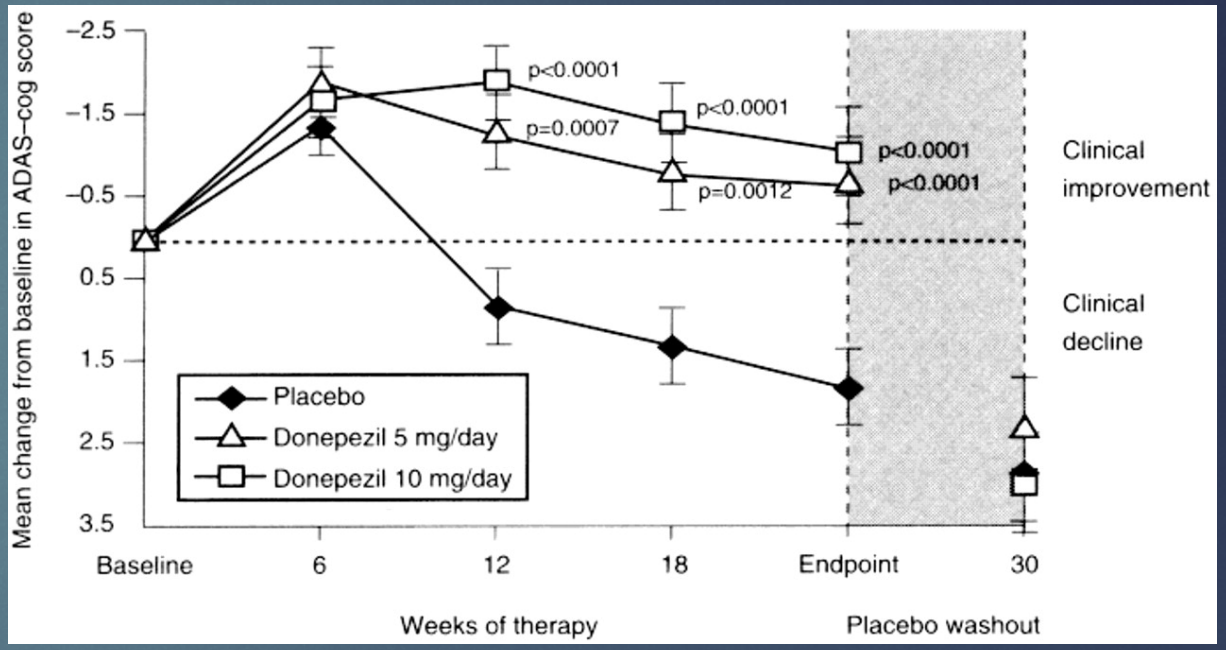
COGNITION

Cholinesterase inhibitors

- Aricept – Donepezil
- Razadyne – Galantamine
- Exelon – Rivastigmine

Antagonist of the NMDA glutamate receptor

- Namenda – Memantina



A 24-week, double-blind, placebo-controlled trial of donepezil in patients with Alzheimer's disease
S. L. Rogers, M. R. Farlow, R. S. Doody, R. Mohs, L. T. Friedhoff, Donepezil Study Group*
Neurology Jan 1998, 50 (1)

Progression of Disease

Anticipatory Guidance

- Cognitive skills will decline
- Support needs will increase
- Risks of falls, injuries will increase
- Swallowing dysfunction, clots, pneumonia, bladder infections
- Seizures
- Watch for signs of abuse and neglect
- Watch for signs of caregiver burn out
- End-of-Life care; Palliative and Hospice

Thank you

sethkeller@aol.com