



# The Value of Dementia Assessments

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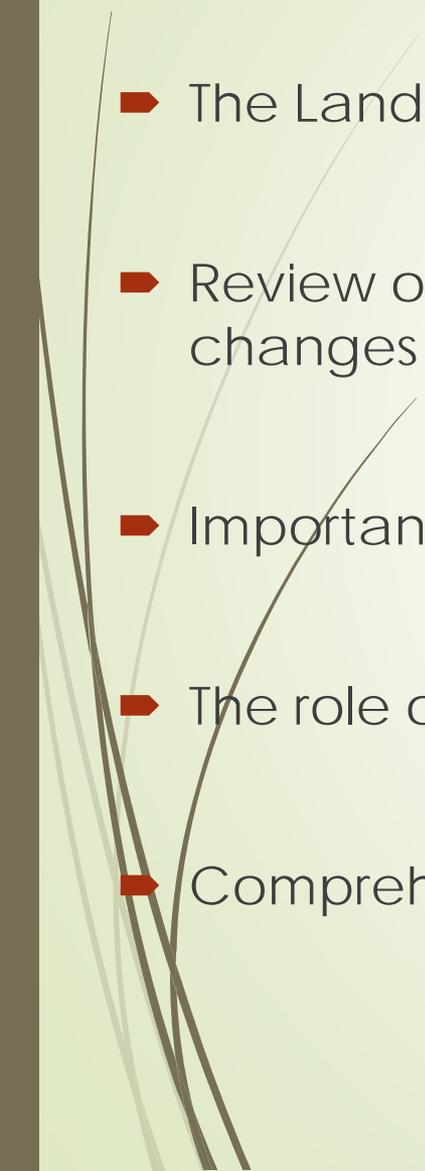
Walker Memory Center



No disclosures



# Outline

- The Landscape of Dementia
  - Review of medical conditions that can result in mental status changes
  - Importance of differential diagnosis
  - The role of screening
  - Comprehensive evaluation procedures
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# What We're Dealing With

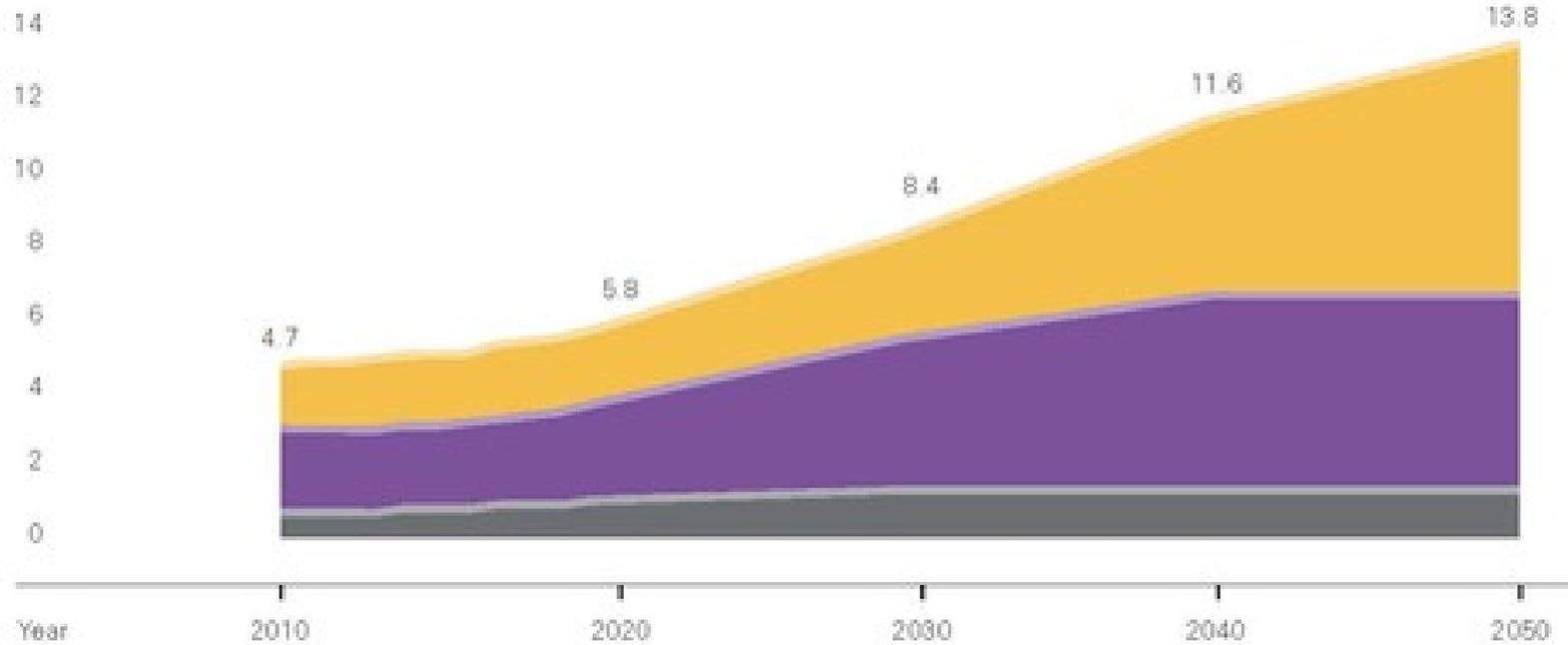
- ▶ The Global Impact of Dementia
  - ▶ 46.8 million people world wide (2015)
  - ▶ Almost doubles every 20 years
  - ▶ US: 5.8 million living w/ Alzheimer's Dementia (2020)
    - ▶ 13.8 million by 2050
    - ▶ 6<sup>th</sup> leading cause of death
      - ▶ Death from heart disease has decreased by 7.8%
      - ▶ Death from AD has increased by 146%
  - ▶ 1 in 3 seniors dies with some form of dementia
  - ▶ In Arkansas – 58,000 with Alzheimer's dementia, now
    - ▶ Expected to increase 155% by 2025

figure 5

Projected Number of People Age 65 and Older (Total and by Age Group) in the U.S. Population With Alzheimer's Disease, 2010 to 2050

Millions of people with Alzheimer's

■ Ages 65-74   ■ Ages 75-84   ■ Ages 85+



Created from data from Hebert et al. (2014, 2011)



# What healthcare providers need to know

Compared to other older adults, dementia patients:

- ▶ have twice as many hospital stays per year
- ▶ are more likely to have other chronic conditions
- ▶ require more skilled nursing stays and home health care visits
- ▶ are more likely to require long-term nursing home care

Expected healthcare costs of caring for dementia pts in 2020: \$305 billion

- \$206 billion born by Medicare & Medicaid



# What We're Dealing With re: Caregivers

- ▶ Friends & family provide est. 18.6 billion hours of unpaid care for Alzheimer's patients each year
- ▶ Valued at \$224 billion
- ▶ Over half are adult children
- ▶ 41% of caregivers have a household income of \$50,000 or less
- ▶ Most are women



# What We're Dealing With re: Caregivers

- ▶ 59% rate their caregiver stress as high or very high
  - ▶ 30-40% have depression
- ▶ 74% report that they are somewhat to very concerned about maintaining their own health
- ▶ 41% report that no one else provided unpaid assistance

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- Review of medical conditions that can result in mental status changes, and
  - The importance of differential diagnosis



# All-cause Dementia

- Cognitive or *behavioral* symptoms
- Represent decline from previous functioning
- Impairment in at least 2 domains (2 SDs below expectation)
  - Memory
  - Executive functions: Reasoning, Judgment, Handling complex tasks
  - Visuospatial abilities
  - Language
  - Mood, Behavior, Personality changes
- Interfere with functioning -- IADLs
- Not explained by delirium or major psychiatric disorder

# Causes of Dementia

- ▶ Alzheimer: 60-80% of cases
- ▶ LATE - Limbic-predominant age-related TDP-43 encephalopathy – 20-50% of those >80 years
- ▶ Vascular: 5-10% - pure
- ▶ Lewy Body: 5-10% - pure
- ▶ Frontotemporal: 10-15%
- ▶ Parkinson
- ▶ Creutzfeldt-Jakob, Huntington's, Wernicke-Korsakoff, NPH, et al – much less common
- ▶ Mixed dementia is very common > 50%  
Alzheimer's, vascular, Lewy body

# Mild Cognitive Impairment

- Difficult to differentiate from normal cognitive aging and dementia – subtle dysfunction requires clinical judgment
- Lower performance in one or more cognitive domains than expected for age and educational background – at least 1 to 1.5 standard deviations below expectation\*
- Mild difficulties with complex IADLs (less efficient, more errors), but generally able to maintain independence with minimal assistance.
- Once established, it is important to assess the likely etiology – AD, vascular, medical, etc. -- Often difficult due to comorbidities
- Progression to dementia – roughly 10 % per year, though some will revert to normal
- So, important to monitor clinically
- Important research question – who converts and why?



# Normal Aging

- More easily distracted
- More difficulty with multi-tasking
- More time needed to process information
- Diminished working memory
- Diminished visuospatial abilities
- Verbal abilities increase
- Can be difficult to discriminate from MCI



# Delirium

- ▶ Disturbance of **attention** – (to direct, focus, sustain, and shift attention) and **awareness** (orientation to the environment)
- ▶ Develops over a short period of time (usually hours to a few days), and represents a change from baseline. Tends to fluctuate in severity during the course of a day,
- ▶ Plus, additional disturbance of cognition (e.g., memory, language, visuospatial ability, perception, or orientation)
- ▶ Not better explained by dementia or coma
- ▶ Evidence of direct physiological consequence of another medical condition, substance intoxication or withdrawal, or exposure to a toxin



# Causes of Delirium

- Medication side effects or drug toxicity
- Alcohol or drug intoxication or withdrawal
- A medical condition, such as a stroke, heart attack, worsening lung or liver disease
- Metabolic imbalances, such as low sodium or low calcium
- Severe, chronic or terminal illness
- Infection -- urinary tract infection, pneumonia or the flu
- Exposure to a toxin, such as carbon monoxide, cyanide or other poisons
- Malnutrition or dehydration
- Sleep deprivation
- Pain
- Surgery or other medical procedures that include anesthesia



# Delirium

- Modifiers:
  - acute
  - chronic
  - hyperactive
  - hypoactive
  - mixed level of activity: includes individuals that have a normal level of psychomotor activity, even though attention and awareness are disturbed
  
- Other specified delirium: **attenuated delirium syndrome**

➤ DSM 5



# Delirium vs Dementia

- ▶ Delirium often goes undiagnosed in older adults – particularly hypoactive delirium
- ▶ Difficult to distinguish in older adults who have had a pre-existing, but undiagnosed dementia
- ▶ and in those who develop persistent cognitive impairment following an acute episode of delirium, i.e. chronic delirium

Traditional distinction: acuteness of onset and temporal course



# Importance of Differential Diagnosis





# Importance of Differential Diagnosis

- ▶ Accurate Diagnosis determines:
  - ▶ How we will treat medically
  - ▶ How we will intervene non-medically
    - ▶ Legal planning\*
    - ▶ Financial planning\*
    - ▶ Long-term care planning\*
      - Pt's ability to participate is dependent on capacity
- ▶ How we will educate patients and families
- ▶ How we will implement safety plans
  - ▶ Medication compliance plans
  - ▶ Driving assessment/alternative mobility plans
  - ▶ Emergency management



# Rationale for Early Diagnosis

- ▶ Early use of beneficial medication
- ▶ Opportunity to participate in clinical trials
- ▶ Increased opportunity for pt to participate in planning
- ▶ Opportunity to address caregiver burden and provide support
- ▶ Early use of behavior management strategies, if needed
- ▶ **Unfortunately, caregivers report that it takes > 2 years from initial physician visit to receive a dementia dx**

# Rationale for Early Diagnosis

- 50 - 80% of pts with dementia have no documentation of the dx in their medical record – serious implications
  - 26% have CAD
  - 23% have diabetes
  - 13% have cancer
- > 75% of family members rate the benefits of having a dx as “very or extremely high”
- Only 6% strongly agreed that “it is easier to not know what the diagnosis is”
- Disclosure of dx does not typically result in significant changes in depression – for pt or companion
- 89% of U.S. adults say they would go to a doctor to determine whether memory sx are caused by AD



# Role of Cognitive Screening

- ▶ Can give PCPs a ballpark estimate of cognitive functioning and need for further assessment and intervention
- ▶ However,
  - ▶ Can be particularly misleading in persons with either above or below average IQ
  - ▶ Insufficient to discriminate different types of dementia
  - ▶ Insufficient to discriminate dementia from subacute delirium



# Issues: Who and When to Screen?

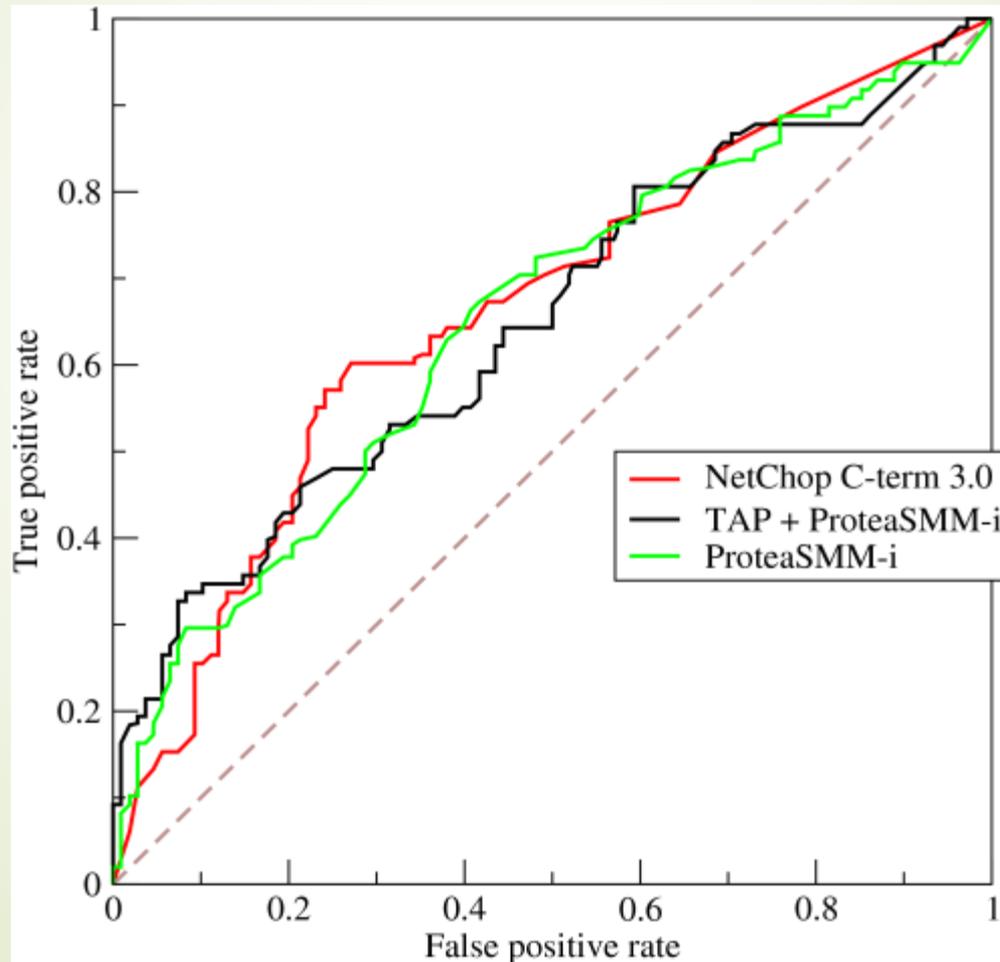
- ▶ Role of Subjective Cognitive Complaints
  - ▶ Role of informants
  - ▶ What about MCI? – no established cut-offs on most instruments
    - ▶ Prevalence may be much higher than for dementia in typical screening situations
- “Finding dementia in primary care” –
- Of persons passing a screen (Mini-Cog), those who requested and completed further evaluation:
- 87% had cognitive impairment (MCI)
  - 70% had dementia



# Common Screening Measures

- ▶ MMSE – accuracy effected by age, education and ethnicity
  - ▶ Most researched
  - ▶ No longer public domain -- \$\$
- ▶ SLUMS – minimal research
- ▶ MoCA – designed to detect MCI; no cut-off for dementia
- ▶ Mini-Cog – recommended by AA
  
- ▶ Most better at detecting dementia than MCI (except MoCA)

# What about false positives?





# Psychometric Issues –

What do the results really mean?

- ▶ Reliability of measurement
  - ▶ Test-retest
    - ▶ Random errors
    - ▶ Practice effects
  - ▶ Inter-rater
    - ▶ Standard Administration vs. Administrator error (word lists, clock scoring, pentagons)
- ▶ Standard Error of Measurement on screening measures
  - ▶ “True” Score vs. Obtained Score
    - ▶ Usu. 3-4 points



# Evaluation Procedures





# Recommended Dx Procedures – Comprehensive Cognitive Evaluation

- Clinical Exam
- History – include informant
- Lab tests (complete blood count, chemistry profile, B12, thyroid hormone)
- MRI/CT – to rule out CVD, tumor, NPH
- Cognitive assessment of multiple cognitive domains

# Components of a Comprehensive Neuropsychological Evaluation

- Clinical interview – with inclusion of informant
- Screening for depression and other emotional factors
- Neuropsychological Testing – to identify cognitive deficiencies as well as areas of relative strength and weakness
  - **Multiple tests in all domains:** Attention, concentration, processing speed, memory, perceptual/visuospatial, language, executive functioning
  - **Norm-based comparisons for age, education, ethnicity**
- Functional assessment – of instrumental activities of daily living
- Assessment of caregiver contributions and concerns



# Not Recommended

- ▶ Genetic Risk Profiling
  - ▶ < 1% of AD pts have a autosomal dominant genetic mutation (amyloid precursor protein APP, Presenilin 1 or 2) that guarantees disease – leading to **young-onset dementia**
  - ▶ Apolipoprotein E e4 increases risk, but does not guarantee disease – unacceptable rates of false positives and false negatives
- ▶ Cerebrospinal Fluid and Plasma Biomarkers – not yet sufficiently standardized.
- ▶ PET Scan – not sufficiently standardized.
  - ▶ However, Medicare does cover PET for differential dx between AD and FTD



# Biomarker Evidence

- ▶ May increase certainty, but
- ▶ Not recommended for routine diagnostic purposes, because:
  - ▶ Clinical criteria provide very good diagnostic accuracy
  - ▶ Criteria for use of biomarkers have not yet been appropriately designed
  - ▶ There is limited standardization of biomarkers from one locale to another
  - ▶ Access to biomarkers is limited in many settings
  - ▶ Minimal impact on treatment
- ▶ Primarily used in research settings at present



# Summary



- ▶ The costs of failure to diagnose dementia and other cognitive disorders of aging are great
- ▶ Early diagnosis matters to patients and families
- ▶ There are MANY conditions that can cause mental status changes in older adults
- ▶ Differential diagnosis matters in how we treat and educate patient and families
- ▶ A comprehensive and competent evaluation is required.