

Week 10,11

- Week 10
 - Tuesday:
 - NP Interpretation Example
 - Lezak Ch 6 : The Neuropsychological Assessment Report
 - Thursday
 - Exercise 3: The Mental Status Exam
- Week 11
 - Tuesday
 - Finish Ch 6
 - Begin Neuropsychological Assessment Report Assignment
 - Thursday
 - Review and workshop on writing the Report

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Review

- Demographic Variables
 - age, education, sex/gender, race/ethnicity
- Estimating Premorbid Functioning
 - statistical methods (demographic variables or vocation/skills)
 - “hold” tests such as NAART
- NP Test Practice
 - Trails
 - A
 - B
 - COWAT
 - FAS
 - Animals
- Standard Scores

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NP Interpretation Example

- Testing
 - is more Objective
 - standardization
 - normative data
 - demographic corrections
- Interpretation
 - is more Subjective
 - poor mapping of tests to brain systems
 - gray areas in test scores
 - lack of premorbid function tests
 - more of an art than a science
 - uses Clinical Intuition

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Interpretation Demonstration

- In which we take simulated patient data and attempt to make sense of it.

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Patient X

- Background
 - 27 year old Hispanic male
 - Normal childhood developmental milestones
 - Finished High School with 3.5 GPA
 - worked at a factory assembling circuit boards
- Symptoms & History
 - 1 month ago was in motorcycle accident with minor CHI injury with 5 minute LOC
 - “life changing experience” : entered college
 - Chief complaint :
 - struggling with grades
- Reason for referral
 - did he suffer brain damage? can he succeed in college?

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Patient X

- Clinical Interview & Mental Status Exam
 - within normal limits
- Neuropsychological Test Results
 - ...
- Interpretation & Diagnosis
 - ...

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Test Scores : Patient X

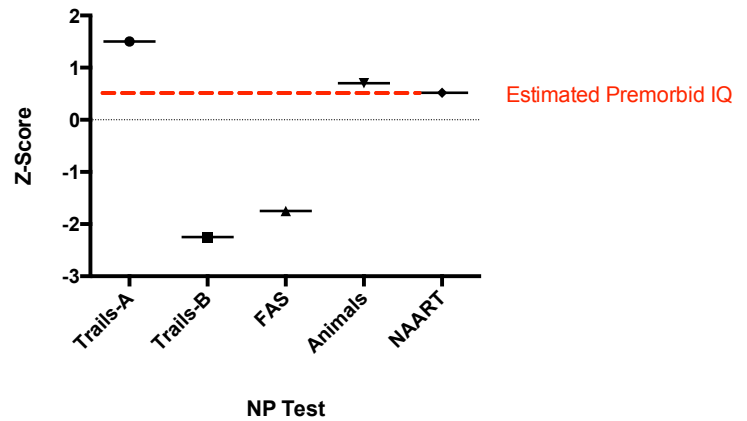
Test Name	Subtest Name	Z score (demographically corrected)
Trail Making	Trails A	+1.50
Trail Making	Trails B	-2.25
COWAT	FAS (Letter)	-1.75
COWAT	Animals (category)	+0.70
NAART	# correct	+0.52

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Patient X

Patient X - NP Test Profile Graph



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Test by Ability Areas

Test Name	Ability Areas below expectation	Abilities Normal or above
Trails A		Perception Motor Speed Occipital, Motor Cortex
Trails B	Executive Function Inhibition Working Memory Frontal Lobe, Right	
COWAT - Letters (FAS)	Executive Function Working Memory Frontal Lobe, Left	
COWAT - Category (Animals)		Semantic Memory Temporal Lobe Left Hemisphere
NAART - Premorbid Vocabulary		Verbal IQ Broca's Area Left Hemisphere

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Patient X : Interpretation & Conclusion

- Premorbid
 - Test: IQ in average range - consistent with history
- Current:
 - some abilities normal or above
 - visuomotor, simple sequencing, vocabulary, language
 - some very far below expected:
 - working memory, executive function
- Conclusion:
 - results consistent with mild frontal lobe trauma affecting executive functions
- Recommendations:
 - Can patient succeed in college?
 - Recovery?
 - Rehabilitation?

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Neuropsychological Assessment Report

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The NP Assessment Report

- Identifying Information & Presenting Problem
- Background
- Symptoms & History
- Clinical Interview & Mental Status Exam
- Neuropsychological Test Results
- Interpretation & Diagnosis
- Recommendations

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Identifying Information & Presentation

- Who is this person
 - identifying information
 - include demographic data as needed for Norms
- Why are they receiving a NP assessment?
 - chief complaint
 - reason for referral
 - desired outcomes

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Background : Symptoms & History : Family

- Family background - Parents, relatives and children
 - history of similar illnesses, other illnesses
 - development of symptoms
 - response to treatment
 - educational & occupational achievement
 - genetic issues

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Background : Developmental

- Developmental
 - birth
 - early childhood milestones
 - education
 - primary
 - secondary
 - post-secondary
 - learning disabilities
 - psychosocial milestones
 - relationships, offspring, job, career...

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Symptoms & History

- Sx and Hx
- Course of symptoms
 - insidious vs. acute
 - episodic vs. chronic
 - subjective
 - objective
 - treatment
 - compensation
 - consequences

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Behavioral Observation

- Observation
 - direct
 - third-party
 - behavioral assessment
- Clinical Interview
 - Mental Status Exam...

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MSE : Mental Status Exam

- Structured, systematic observation of a person's behavior during the interview
- Major Areas
 - Appearance & Behavior
 - Thought Processes (and Speech)
 - Mood & Affect
 - Intellectual functioning
 - Sensorium & Orientation

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MSE : Appearance and Behavior

- Appearance
 - Sex, age (actual and apparent), height weight, deformities
 - Attire, Grooming
 - Gait, Posture, expressions
- Behavior
 - On time, late
 - Needing help, confused
 - Motor behavior, tics, etc.
 - Eye contact
 - Attitude

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MSE : Speech & Thought Form

- Speech Production
 - Volume
 - Rate
 - Flow
 - Accent
 - Prosody
 - Stuttering
 - Dysarthria
- Thought Form
 - Logical, goal directed
 - Tangential, Circumstantial
 - Perseveration
 - Loose
 - Illogical
 - Incoherent (word salad)
 - Clanging / Echolalia
- Misc:
 - Neologisms
 - Paraphasia

Higher
Functioning

Lower
Functioning

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MSE : Thought Content

- Content
 - Delusions
 - Hallucinations
 - Ideas of Reference
 - Thought insertion, withdrawal, broadcast
 - Obsessions, Ruminations, Impulses
 - Phobias
 - Ideation of Harm to self or others
 - Thoughts
 - Plans
 - Means
 - Actions

Lower
Concern

Higher
Concern

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MSE : Mood & Affect

- Mood
 - first person impression of how they feel
 - Internal, Sustained
- Affect *
 - external appearance of mood
 - normal, restricted, blunted flat
 - expansive, infectious
 - appropriate or inappropriate
 - mood-congruent or incongruent
 - External, momentary
- * Note : this definition is not universal

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MSE : Intellectual Functioning

- Abstract thought vs. Concrete
 - “What brings you here today?” - “A taxi”
- Insight
 - “My tummy hurts” vs. “I’m worried about failure”
- Judgement
 - “Should an alcohol abuser go to a bar?”
- Reasoning
 - “Why is taking your medication important?”
- Planning
 - If you have only one pill left, what should you do?
- Memory
 - Short and Long term

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MSE : Consciousness & Sensorium

- Consciousness / Alertness:
 - sleepy, awake. Consistent or variable?
- Orientation (x3 or x4)
 - Person - who are you?
 - Place - where are you?
 - Time/Date - when is it?
 - Situation / Reason for visit - why are you here?
- Sensorium:
 - Clear or Clouded
 - Hallucinations, dissociations

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MSE Checklist

Appearance : sex, age, height, weight, deformities, attire, grooming, gait, posture, expression	Mood : Manic (euphoric), hypomanic, euthymic, dysthymic, depressed. Anxious, angry, irritable.
Behavior : On time, needing help, confused. Motor behavior,tics, eye contact. Attitude.	Affect : Range: full, restricted, blunted, flat. Lability. Appropriate, congruent
Speech : Volume, rate, flow, accent, prosody, stuttering, dysarthria, neologisms, paraphasia, neologism, clanging, echolalia.	Cognition : Abstract thought, insight, judgement, reasoning, planning, memory.
Thought Form : Logical & goal-directed,tangential, circumstantial, perseveration, loose associations, incoherent, word salad.	Consciousness : Awake, sleepy, sedated. Consistent or variable.
Thought Content : Delusions, hallucination, Ideas of Reference, thought insertion / withdrawal / broadcast, obsessions, ruminations, impulses, phobias. Violent Ideation: thoughts, plans, means, actions	Orientation : Person, place, time, situation.

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Neuropsychological Test Results

- Issues
 - Qualitative vs. Quantitative...
 - Norms & premorbid functioning...

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Quantitative Data

- Pros
 - standardized
 - replicable
 - precision, accuracy, reliability & validity
 - can be estimated
 - bias : reduced
 - science
- Cons
 - impersonal
 - penalizes individual differences / creativity
 - may miss important clues
 - sensitive but perhaps not specific
 - Example: poor performance on Trails B - why?

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Qualitative Data

- Pros
 - personal
 - individualized
 - detailed
 - pathognomonic - *latin, pathos: disease, gnomon: judge*
 - explains Why or How
 - may suggest compensation strategy
 - art
- Cons
 - biased, arbitrary
 - cultural issues
 - subject to over-interpretation
 - limited reliability, validity, precision and accuracy

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Interpretation

- Establish premorbid functioning
- Compare current functioning to premorbid
- Explain in context of symptoms & history
- Diagnosis

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Recommendations

- Based on diagnosis and interpretation
 - describe Prognosis
 - immediate
 - recovery
 - long-term
 - social
 - vocational
 - recommend clinical interventions
 - medical
 - psychological
 - recommend compensations
 - operational
 - vocational
 - psychosocial

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Recommendations 2

- Rehabilitation
- Further NP Assessment
- Referrals to other specialists

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Common Issues

- Estimating Premorbid Functioning
- Ecological Validity & Overgeneralization
- Confirmatory Bias
- Base Rates, Hit Rates, False Positives & False Negatives
- Effects of Effort & Motivation

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Premorbid Functioning

- Rarely have pre-morbid test data, so must estimate it
- Demographic variables affect performance
- Use statistical normative data and adjust for
 - age, education, sex, race...
- Problems:
 - normative data : rarely detailed enough
 - definitions of “education”, “race”...
 - cohort changes

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Ecological Validity & Overgeneralization

- NP Testing is artificial
 - at one place
 - at one time
 - uncomfortable
 - doesn't measure ability to learn, improve, adapt
- Problems
 - “having a bad day”
 - strategy: accuracy vs. speed tradeoffs
- Conclusion:
 - predictions should be humble
 - “will never be able to work again” -- are we sure of this?

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Confirmatory Bias

- Motivations of related parties
 - lawsuit? medical care? release from responsibility?
 - individual variations
 - most people have odd behavior if you look closely enough
 - over-pathologizing

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Base rates & Hit Rates

- When the Base Rate of a disorder is very low, even using tests with very high sensitivity & specificity
 - Likely to have more False positives & False negatives than Hits
- Example:
 - if a disease is in 1/1000 patients, and your tests have 99% specificity and 99% sensitivity...
 - You will diagnose 10 of 1000 as having the disease
 - but 9 of them will not (a 90% false positive error rate!)
- Issue: what is the actual base rate *for the group of patients referred to you*

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Effort & Motivation

- Low effort impacts performance
- What affects effort?
 - motivation
 - ability
 - fatigue
 - frustration
- Problem:
 - risk of confusing “Can’t do it” with “Won’t do it”
- Strategies:
 - ensure motivation, rest breaks, maintain rapport
 - symptom validity tests
 - detect malingering