Demystifying the Neuropsychological Evaluation Report

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84% of neuropsychologists believe that referral sources do not, or only occasionally, read their reports
Learning Objectives

• At the conclusion of this continuing education program you will be able to:

1. Read a neuropsychological evaluation report with confidence and ease

2. Recognize when a neuropsychological evaluation might be useful to patient care

3. Optimize consultation with a neuropsychologist through the creation of informed referral questions and ongoing communication
Take-Away Points

• Clinical neuropsychology is an applied science that can enhance patient care by providing unique information about a person’s cognitive, behavioral, & affective functioning

• The purpose of the neuropsychological evaluation is to answer the referral questions that health-care providers pose about clients

• Providing clear, focused referral questions as part of the request for consultation will result in more useful suggestions / guidance

• If questions remain after feedback has been rendered and the report has been reviewed, then call the consultant clinical neuropsychologist who conducted the evaluation!
Agenda

• Pre-test

• Neuropsychological evaluation basics

• Anatomy of a neuropsychological evaluation report

• Optimizing neuropsychological evaluation consultations

• Case review & practice

• Re-cap
NEUROPSYCHOLOGICAL EVALUATION BASICS
Clinical Neuropsychology

• An applied science that examines the impact of both normal and abnormal brain functioning on a broad range of cognitive, emotional, and behavioral functions.

• Distinct:
  – Use of neuropsychological measures
  – Systematic behavioral observations
  – Interpretation based on knowledge of brain-related conditions

Neuropsychological Evaluation

- Examines brain-behavior relationships as they pertain to cognitive, emotional, and behavioral manifestations of central nervous system trauma, disease or dysfunction
• **Nervous System**
  – Network of cells that communicate between a being & its surroundings
Neuropsychological Evaluation

- Performed by a licensed clinical psychologist who has had specialized training across 8 core knowledge areas:
  - Basic neurosciences
  - Functional neuroanatomy
  - Neuropathology
  - Clinical neurology
  - Psych & neuropsychological assessment
  - Psychopathology
  - Psychological interventions

(www.abpp.org)
Neuropsychological Evaluation

• Clinical neuropsychologist’s role:
  – Provide referral source with information about how a disease or psychosocial factors is affecting cognitive, behavioral, and emotional functions of an individual
Neuropsychological Evaluation

- Range of questions NP evaluation can answer:
  1. Diagnoses
  2. Neuropsychological status
  3. Treatment planning
  4. Research evaluation
  5. Forensic applications
Reasons for Referral

• Differential Diagnoses
  – Example 1:
Reasons for Referral

• Differential Diagnoses
  – Example 2:
Reasons for Referral

- Differential Diagnoses
  - Example 3:
Reasons for Referral

• Differential Diagnoses
  – Example 4:
Reasons for Referral

• Differential Diagnoses
  – Example 5:
Diagnostic Impression

- Pt’s Personal History
- Knowledge of brain-behavior relationships
- Neuroimaging
- Laboratory data
- Pt’s Current Complaints

Knowledge of brain-behavior relationships
Reasons for Referral

• Describing neuropsychological status
  – Example 1:
Reasons for Referral

• Describing neuropsychological status
  – Example 2:
Reasons for Referral

• Treatment Planning
  – Example 1:
Reasons for Referral

• Treatment Planning
  – Example 2:
Reasons for Referral

• Treatment Planning
  – Example 3:
Reasons for Referral

• Research evaluation tool
  – Example: Evaluating the effects of a medication to treat a disease in a randomized controlled trial
Reasons for Referral

• Forensic applications
  – Used to determine if, or the extent to which, an alleged event resulted in damage to the central nervous system
Reasons for Referral

- Forensic applications
  - Decision-making capacity

(Appelbaum & Grisso, 1988)
The Neuropsychological Evaluation Process

- Record Review
- Clinical Interview
- Standardized Testing
- Report & Feedback
Record Review

- History & Physical (H&P)
- Consultation reports
- Follow-up office visit notes
- Neuroimaging reports (e.g., CT, MRI)
- Academic records
Clinical Interview

• Offers immense diagnostic value

• Provides focus to the neuropsychological evaluation

• Establishes the therapeutic alliance
Clinical Interview

• Clarifying the History of Presenting Problem
  – Symptoms
  – Time-course
    • Acute onset versus chronic course
    • Elapsed time since onset of sx
Standardized Testing

- Cognitive Domains Assessed
  - Attention
  - Processing Speed
  - Language
  - Visual-spatial
  - Learning & Memory
  - Executive Functions
Standardized Testing

- Emotional Functions
  - Mood
  - Coping Strategies
- Personality
Standardized Testing

• Assessment Methods
  – Determined by factors:
    • The purpose and nature of the referral
    • Hypothesized etiology of suspected dysfunction
    • Time and course of symptoms
Standardized Testing

• Duration and extent of testing undertaken varies depending on the complexity of the case including nature of referral question and patient presentation
Neuropsychological Evaluation Report

• Aims:
  1. To describe the patient and record the findings
  2. To interpret the patient’s performance on tests in light of other assessment information
  3. To answer questions and make judgments regarding the nature and sources of the presenting complaints
  4. To assess prognosis and make recommendations for future care
  5. To communicate the results to the patient or significant others with permission, to the referral source and other service providers such as teachers and therapists

(AACN, 2007)
Neuropsychological Evaluation Report

• Purpose:
  1. Document what was done with the patient

  2. Communicate test results, diagnostic impressions, and recommendations to the referral source
Neuropsychological Evaluation Report

• Constants
  – Problem-oriented
  – Clearly answer the referral question
  – Inclusion of only relevant information

• Variable
  – Style
  – Length
The Neuropsychological Evaluation Process

Record Review → Clinical Interview → Standardized Testing → Report & Feedback
ANATOMY OF THE NEUROPSYCHOLOGICAL EVALUATION REPORT
Neuropsychological Evaluation
Report Content

• Similar to reports provided by other medicine subspecialists

• No universally accepted outline or format, but follow a typical organization as other clinical encounter reports
Neuropsychological Evaluation Report Content

- Identifying Information
- Referral Information
- History of Presenting Problem
- Current Status
- Background Information / Personal History
- Circumstances of Evaluation
- Test Results
- Summary & Conclusions
- Recommendations
- Appendix: Data sheet
Neuropsychological Evaluation
Report Content

• Identifying Information
  – Patient Name
  – Medical Record Number
  – Date of Birth
  – Date of Evaluation
  – Date of Report
  – Age
  – Gender
  – Education
  – Handedness
Neuropsychological Evaluation Report Content

• Referral Information
  – Referral Source
  – Referral Question(s) / Reason for Referral
Neuropsychological Evaluation Report Content

• History of Presenting Problem
  – Note regarding source of information
  – Description of presenting problem from perspective of patient and collateral source (e.g., family, providers)
  – Mode of onset and course
    • Abrupt versus insidious onset
    • Slowly progressive versus rapidly progressive versus static versus stepwise
  – Associated problems
    • Word-finding problems, parkinsonian features, changes in personality, etc.
Neuropsychological Evaluation Report Content

• History of Presenting Problem
  – Impact of problems on daily functioning
  – Use of compensatory strategies
  – Results of most recent neurologic examination
Neuropsychological Evaluation Report Content

• Current Status
  – Guardian / Conservator
  – Living Arrangements
  – Vocational Status
  – Functional / Behavioral Status
  – Medical Status
  – Psychological Status
  – Current Treatment
  – Medications
Neuropsychological Evaluation Report Content

• Background Information / Personal History
  – Developmental
  – Educational
  – Vocational
  – Medical
  – Psychiatric
  – Substance Use
  – Family / Psychosocial
  – Legal
Neuropsychological Evaluation Report Content

• Circumstances of Evaluation
  – Locations
  – Participants
  – Procedures / Measures Used
Neuropsychological Evaluation
Report Content

• Test Results
  – Behavioral Observations
    • Appearance
    • Gait/station
    • Motor (e.g., tremor)
    • Orientation
    • Speech (rate, rhythm, intonation, prosody; content; process)
    • Mood
    • Affect
    • Suicidal/Homicidal Ideation Plan
    • Psychotic Symptoms
    • Judgment & Insight
    • Test Taking Behavior
Neuropsychological Evaluation Report Content

• Test Results *cont.*
  – Often includes a description of how a patient is functioning within **cognitive domains**
    • Attention/concentration
    • Processing speed
    • Language
    • Visuospatial
    • Learning & memory
    • Executive functions
• Test Results *cont.*
  – Also addresses:
    • Sensory
    • Motor
    • Emotional / Personality
Neuropsychological Evaluation
Report Content

• Test Results *cont.*
  – Test scores are based on a normative comparison standard
    • Raw Scores
    • Standard Scores
    • Percentile ranks
The Normal Curve

Standard Scores

<table>
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<tr>
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<th>60</th>
<th>70</th>
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<th>90</th>
<th>100</th>
<th>110</th>
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<th>140</th>
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<td>5</td>
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<td>25</td>
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<td>99</td>
<td>99.9</td>
<td>99.99</td>
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</table>
Neuropsychological Evaluation
Report Content

• Test Results *cont.*
  – Normative comparison groups
    • Age
    • Level of Education
    • Gender
    • Ethnicity
### Test Results *cont.*

– Describing Test Scores

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Typical referent percentile range</th>
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<tbody>
<tr>
<td>Very Superior</td>
<td>&gt; 98th</td>
</tr>
<tr>
<td>Superior</td>
<td>91&lt;sup&gt;st&lt;/sup&gt; – 97&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>High Average</td>
<td>75&lt;sup&gt;th&lt;/sup&gt; – 90&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Average</td>
<td>25&lt;sup&gt;th&lt;/sup&gt; – 74&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Low Average</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; – 24&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mildly Impaired</td>
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</tr>
<tr>
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<td>2&lt;sup&gt;nd&lt;/sup&gt; – 5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Severely Impaired</td>
<td>&lt; 2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
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Generic Classification/Description of Test Scores
Neuropsychological Evaluation
Report Content

• Test Results *cont.*
  – Ideally, the information is presented in terms of performance rather than in terms of a test
  – Example:

  **Attention**
  • Sustained attention was significantly below expectations.

  versus

  • The patient’s score on a computerized test requiring her to respond to the letter X when presented with multiple letter trials over time was poor.

(Strauss, Sherman, & Spreen, 2006)
Test Results *cont.*

- Topic sentences may be used to integrate the information from different tests, followed by supporting data
- Example:

**Language**

- Auditory comprehension appeared intact. She was able to follow complex commands (Token Test WNLs). By contrast, expressive functions were poor. Her ability to generate words on command was below average (COWAT: 10th percentile). She also had considerable difficulty with confrontational naming and her score was moderately impaired (BNT: 5th percentile).

(Strauss, Sherman, & Spreen, 2006)
Neuropsychological Evaluation Report Content

• Summary & Conclusions
  – Brief restatement of patient’s history
  – Major neuropsychological findings
  – Formulation
  – Diagnostic impression
  – Comments on functional capacity
  – Prognostic statement
• Summary & Conclusions cont.
  – Brief restatement of patient’s history

  – Example:

    “Ms. X is a 54-year-old right-handed accountant with no previous history of neurological disorder who sustained a severe TBI during a MVA on 12/12/2015.”


Neuropsychological Evaluation Report Content

• Summary & Conclusions cont.
  – Major neuropsychological findings

  – Example:

  “Neuropsychological findings reveal significant deficits in memory and slowed information processing speed.”
Neuropsychological Evaluation Report Content

• Summary & Conclusions *cont.*
  – Formulation
    • Synthesis of test scores with clinical history from self and informants
Neuropsychological Evaluation Report Content

• Summary & Conclusions \textit{cont.}
  – Diagnostic Impression
    • ICD-10 or DSM-5

\textbf{ICD-10}

\textit{ICD-10} is a new code set for reporting medical diagnoses & inpatient procedures.
• Summary & Conclusions *cont.*
  – Answers questions about functional capacity (e.g., driving, living independently, managing medications, decisional capacity)

  – Example statements:
    • “Because these findings suggest that Mr. X’s capacity to make decisions regarding personal affairs is compromised, we recommend that…”
Neuropsychological Evaluation
Report Content

• Summary & Conclusions *cont.*
  – Prognostic statement
    • Expected disease course, prediction of change in function over time
Neuropsychological Evaluation Report Content

• Recommendations
  – Should be practical and realistic
  – Specifically-tailored to the patients’ needs
Neuropsychological Evaluation
Report Content

• Recommendations *cont.*
  – Diagnostic Clarification
    • Referral for further work-up of condition
    • Consultation with another specialist (e.g., neurologist, endocrinologist)
Neuropsychological Evaluation
Report Content

• Recommendations *cont.*
  – Treatment Planning
    • Consultation with another specialist (e.g., psychiatrist for pharmacological interventions)
    • Interventions to address affective sx
    • Interventions to address cognitive deficits
Interventions to Address Affective Sx

- Type of psychotherapy (e.g., CBT, CPT, etc)
- Emotional regulation strategies (e.g., Emotion Cycle)
- Behavioral management plans
- Relaxation strategies (e.g., deep breathing, PMR)
- Suicide precautions
Interventions to Address Cognitive Deficits

• Cognitive strategies training
• Memory notebook training
• Problem solving training (e.g., SWAPS)
Recommendations *cont.*
- Ability to make medical, legal, and/or financial decisions

Decisional Capacity

(Appelbaum & Grisso, 1988)
Neuropsychological Evaluation Report Content

- Recommendations *cont.*
  - Educational and occupational needs
Neuropsychological Evaluation Report Content

- Recommendations *cont.*
  - If follow-up care is needed
Neuropsychological Evaluation
Report Content

• Appendix: Data sheet
OPTIMIZING NEUROPSYCHOLOGICAL EVALUATION CONSULTATION
Communication  
Evaluation  
Communication
Making a Referral for Neuropsychological Evaluation

• A sound referral is one wherein the referring clinician provides the patient with a brief explanation of the purpose of the evaluation, what to expect from a NP evaluation, how the information will be used for the patient’s care
Making a Referral

• Appropriate reasons for referral for neuropsychological evaluation:
  1. Diagnoses
     • Psychodiagnostic clarification
     • Differential diagnosis
  2. Neuropsychological status
     • Establish cognitive strengths/weaknesses and delineate functional implications
  3. Treatment planning
Making a Referral

• Vague referral questions may lead to less useful information
  – Example:
    • Evaluate for ‘organicity’
Making a Referral

- Specificity with referral questions will foster more clinically valuable information
  - Examples:
    - Does this person need a guardian?
    - Can this individual return to his previous job?
    - What academic accommodations does the person need once he/she returns to school?
    - Is the memory loss that the person is exhibiting associated with an early-onset dementia, related to his/her mood disturbance, or simply normal aging?
    - Is this person safe to drive?
    - Can this person benefit from group therapy?
Making a Referral

• Specify, as detailed as possible, questions desired to be answered by NP evaluation

• Provide previous medical and psychiatric history and/or laboratory study results when available

• Review purpose of NP referral to patient including the importance of how results will assist with managing their health-care
CASE REVIEW & PRACTICE
RECAP
Learning Objectives

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Thank You