COGNITIVE TESTING IN THE FRANZCP EXAMINATIONS

Mark Walterfang MBBS Hons FRANZCP
Neuropsychiatry Unit, Royal Melbourne Hospital
Cognitive Neuropsychiatry Research & Academic Unit, University of Melbourne
Mental Health Research Institute, Victoria

April 12th 2003
Why do we cognitively assess?

- To globally aid diagnosis, guide investigations, and inform management & rehabilitation
- To assist differentiation between “functional” and “non-functional” disorders – e.g. depression versus dementia; or between “organic” and “non-organic” disorders – e.g. neurological versus somatoform illnesses
- Identify co-morbid impairment inherent in some illnesses (e.g. schizophrenia)
- To screen high-risk individuals
Why do we cognitively assess in the exam?

• To pass
• To provide a thorough, holistic assessment that integrates all aspects of history and examination
• To assist in generating, and sorting, a differential diagnosis list – and to ensure you don’t miss the diagnosis
• To inform & guide investigations, management, or neuropsychological assessment
Myths About Testing

- Cognitive testing is difficult to learn
- Cognitive testing is onerous
- Cognitive testing is hard to interpret
- Cognitive testing is not relevant
- Cognitive testing is someone else’s job
Basic Schema for Cognitive Testing
Watch-Talk-Test

• All fields of medicine start at the end of the bed and work in
• Much valuable information can be gained prior to or in absence of formal testing
• Progression from behavioural/observational to historical to direct challenge/assessment
Watch

- Degree of co-operation, motivation
- Level of psychomotor activity
- Gait & neurological signs, dysmorphology
- Behaviour – judgement, inhibition, planning, utilisation
- Grooming
- Remembering/making appointment, requiring assistance
Talk

- **Lack of an informant does not mean that interview lacks substance**
- **Information (memory, language, attention, executive) can be gained throughout course of “normal” i/v**
- **Cognitive history/systems review – think first in terms of deficits in domains, then illness types**
- **Cognitive risk factors (HI, ECT, vascular, medication, substances)**
Talk

• Establishing sense of baseline – age, education
• Clues: course, and first symptom of onset; each aids in diagnosis
• Systematic approach best based on set of items you:
  - Are comfortable in doing
  - Understand their interpretation
  - Know their limitations

• Ensure that your collection of items is broad enough to cover most domains

• basic, high yield items; low-yield, specific items; knowledge of n? tests
Models

- Lower-order to higher-order functions (e.g. attention, psychomotor speed to language, construction to executive)
- Regional (temporal, parietal, frontal)
- Illness-based (Alz, scz, FTD, subcortical) / targeted
From Bedside to Neuropsychological Testing

- Cognitive testing items vary in their degree of "bluntness" of dissection of neuropsychological functions.
- E.g. memory:
  - Recall of three objects - blunt
  - Recall of brief story/passage - medium
  - Paired associate learning - fine
- The finer the item, the more sensitive, specific and reliable.
- Beware of assuming a blunt tool is fine.
Distributed Function

- Cognitive testing tends to focus on functions performed by relatively specific zones of the brain.
- These zones are not entirely independent; they are semi-independent, and inter-dependent.
- Example: memory (frontal), calculation to command (language), praxis (interhemispheric)
SUGGESTED APPROACH

BASIC BEDSIDE (blunt)
(ALWAYS DO AT LEAST ONE)

BEYOND BEDSIDE (medium)
(DO IF ABNORMALITIES IN BASIC TESTING, OR IF TIME AVAIL)

NEUROPSYCHOLOGICAL (fine)
(BE AWARE OF & ABLE TO TALK ABOUT THEIR ROLE)
ATTENTION
Attention: Basic Bedside

- Serial 7’s – in the MMSE; difficult for elderly/poorly numerate; intact dominant parietal lobe required; familiar word backwards – better
- Overlearned sequence in reverse (days of week, months of year)
- Orientation – time is most sensitive, esp time of day and duration of stay in hospital; date v. unreliable
Attention: Beyond Bedside

- Digit span – less dependent on memory (other than WM). Normally 6 ±1. Reverse span usually one less usually one less
  - Be aware that forward span ends to test freedom from distractibility, reverse tests working memory
  - Anxiety may reduce score but disappears with practice
Attention: Neuropsychological

- Letter/star cancellation tests* - also useful for inattention

- PASAT - paced auditory serial addition test; set of digits at different speeds that subject has to name (2-8-6-1-9 becomes 10..14...7..10...); very useful in TBI
Letter Cancellation task: “Cancel C’s and E’s”
Attention: Neuropsychological

• Digit symbol tests (e.g. Symbol Digit Modalities Test) - has key of symbols, patient required to fill in spaces according to key. Good measure of psychomotor speed, used in MS. Also reqs visual searching, new learning
Visuospatial: Basic Bedside

- Drawing reproduction – simple to more complex figures
- Praxis – limb, trunk, buccal (different tracts)
- L/R orientation (patient, yours, crossed)
- Clock drawing – correct number placement, drawing hands to command
Visuospatial: Beyond Bedside

- Calculation – simple, difficult, conceptual; written or verbal
- Somatosensory neglect - extinction
- Line bisection
- Copying flower (double-header)
- Drawing a house, bicycle
Visuospatial: Neuropsychological

- Bender-Gestalt test - also has projective qualities; nine figures to be reproduced. Hundreds of different scoring systems exist. Sensitive to R par. lesions.
Visuospatial: Neuropsychological

- Complex figure of Rey (...Taylor, etc.). Scoring systems; also timed. Can be used qualitatively to compare L vs R lesions, and frontal impairment.
Taylor Figure
• **Block design**: part of the WAIS, simple to complex
Memory: Basic Bedside

- Recalling three items; one or two-stage cueing; unrelated words best. Standard deviation in normals significant (0.8 of 3-4 words over 10 min). Cueing suggests retrieval vs storage problem
- Remote memory & fund of knowledge
- Apple-table-penny copyrighted!
- Reproducing drawing after delay
- L vs R hemispheric storage verbal vs spatial
Memory: Beyond Bedside

- **Verbal**: story to immediate recall (it was July and the Rogers had packed up their four children in the station wagon and were off/on vacation)
- **Spatial**: hidden objects; found & named
Memory: Neuropsychological

- WMS-R - Wechsler Memory Scale; battery most frequently administered. Paragraph recall, paired associates, visual pairs, visual design reproduction; visual digit span
- RAVLT - Rey Auditory Verbal Learning Test - word lists learnt; documents primacy and recency effects, interference, intrusion, confabulation
- Benton Visual Retention Test - recall of line drawings after brief delay
EXECUTIVE
Executive: Basic Bedside

- **Proverbs** – abstraction vs concreteness. Be aware of cultural and epoch biases. Similarities & differences better
- **Motor sequencing** – Luria 3-step
- **Categorical fluency** – naming animals; 18-22
Executive: Beyond Bedside

- Inhibition & interference – go-no-go
- FAS from the Controlled Oral Word Association test (COWA) – three one-minute trials, excluding plurals/proper nouns. ~15 for each; total <30 definitely abnormal
- Written sequencing
Executive: Neuropsychological

- Trails A & B (from Halstead-Reitan battery); must shift set in part B - sensitive to frontal impairment
• Wisconsin Card Sorting Test tests set-shifting; one of four symbols printed in one of four colours on cards and match to stimulus cards according to principles. Good for left frontal lesions. Subject places pack of 64 cards in four piles under 4 stimulus cards according to principles, that must detect from examiner’s responses.
• Raven’s Progressive Matrices - test of general intellectual ability; initially pattern matching, then problem solving. In absence of visuospatial deficits, tests executive function
Stroop Effect

- Stroop – it’s all about interference
- Both congruent and incongruent conditions presented
- Incongruent > congruent latency
- Try it online:
  - www.dcity.org/braingames/stroop
• **CLOX TEST**


• Scored version of simple clockface (insert numbers, place hands)

• To discriminate between executive impairment & non-executive constructional impairment
A TALE OF NINE CLOCKS

A & B - dementa with prominent frontal deficits
C - early dementia
D & E - frontal dementia
F - moderate Alzheimer’s
G - vascular dementia & neglect
H - cerebellar stroke
I - Pick’s disease
LANGUAGE
Language: Basic Bedside

- Reading & comprehension – written and verbal, simple and complex
- Repetition of words, phrases, sentences (simple to complex, common to rare)
- Writing to command/spontaneous
Language: Beyond Bedside

- Naming to confrontation; high and low frequency
- Word-finding (subjective)
- Conceptual – “is a ball square?”; “if the lion is killed by the tiger, which one survives?”
Language: Neuropsychological

- Boston Naming Test – identifying 60 large drawings – from tree & pencil through to sphinx & trellis – sensitive to aphasics
- Aphasia batteries such as Multilingual Aphasia Examination (MAE), Boston battery use validated normed versions of most above tasks
COGNITIVE SCREENING & ASSESSMENT TOOLS
AMTS/MSQ

- Standard emergency dept test – ten items; relies heavily on memory/orientation
- Good test-retest reliability
- Not particularly sensitive or specific
- Misses range of other cognitive functions/disorders
Mini-Mental State Examination

- Mini-Mental Status Examination: developed by Folstein & Folstein in 1975
  - widely used in medical settings
  - available in number of languages
  - widely used in research including ECA as part of DIS
- Developed to differentiate functional from organic illness in psychiatric patients.
- Unitary measure made up of 30 items
- Generally administered in under ten minutes; portable & easy to administer
Mini-Mental State Examination

• Limitations,
  - unitary measure, limited testing of many cognitive spheres, lack of executive function testing, lack of graded scoring
  - American Neuropsychiatric Association recommends supplementation with spatial functions, delayed recall & executive function testing

• Significant ceiling effects; significant age & education-related biases; lack of standardised instructions
RMH Neuropsychiatry Unit
Mini-Mental State Exam
(After Folstein, Folstein & McHugh, 1975.)

What is the: year, season, date, day, month? ___/5

What: country, state, town, hospital, ward are we in? ___/5

Name 3 objects (apple, table, penny), one second apart; ask subject to recall all three after you have said them. One point for each correct answer. Then repeat until subject learns all three. ___/3

Ask subject to subtract 7 from 100, and provide the answer, then continue to subtract 7 from each answer given five times. (93, 86, 79, 72, 65). Score one point for each correct answer. Alternatively, or if subject unable to undertake serial 7's, ask to spell word WORLD backwards (spell it forwards first), with one mark for each correct letter. ___/5

Ask subject to recall 3 objects, one point for each recalled. ___/5

Ask subject to name your watch and pen/pencil. ___/2

Ask subject to repeat: “No ifs, ands or buts”. ___/1

“Pick up this piece of paper with your right hand, fold it in half, and place it in your lap.” ___/1

Ask patient to read & obey the following:

CLOSE YOUR EYES. ___/1

Ask patient to write a sentence – of their choice, containing a noun & verb, below. ___/1

Ask patient to copy this design in the space to its right. ___/1

TOTAL SCORE ___/30
NCSE

- Neurobehavioral Cognitive Screening Examination (Kieman et al in 1987)
- Eight years of experience in C-L role to neurosurgical unit
- Designed to address issues with MMSE & other tools
  - introduced multi-dimensional scoring & screen’n’metric approach
  - standardized instructions
- “Pattern” of cognitive function across multiple domains taps into key medical skill of pattern-matching
• Limitations
  - Screen & metric approach has lack of specificity & suitability of screen items
  - ? estimates of brevity claimed by authors

• NCSE in psychiatric populations
  - limited specificity and poor predictive power as regards presence of cognitive disturbance, whilst retaining moderate sensitivity
ACE

- Addenbrooke Cognitive Examination
- Published by Cambridge team 2000 (Berrios, Mathuranath, Nestor, Hodges)
- Includes MMSE as well as more extensive language, visuospatial & memory testing
- Scores out of 100 & score out of 30
- Limited executive function testing
• Frontal Assessment Battery published in 2000 by Saltpetriere group (Dubois et al)
• Includes common bedside cognitive function tests incl. sequencing, interference, inhibition, similarities, verbal fluency
• Very much like the executive scale of the NuCOG!
• NUCOG is both ACE & FAB
CAMDEX

• Art of the CAMDEX (Roth et al, Cambridge University) – specifically designed for the diagnosis of dementia in the elderly; incorporates the MMSE within the battery
• Advantages: sensitive and specific, high inter-rater reliability, sensitive to mild degrees of dementia, good detection of impairment across all spheres
• Disadvantages: not as widely available, some floor effects, poorly sensitive to frontal lobe dysfunction, impaired abstraction or attention
• Less generalizable to treatment populations other than the elderly/demented
ADAS-COG

• Dementia-specific, 21-item test designed to detect classical areas of deficit in SDAT (memory, orientation, language, praxis). Scores out of 70 (cognitive) and 50 (non-cognitive – mood, behaviour), and monitors change with less floor/ceiling effects.
Neuropsychological Tests of Intelligence/IQ

- WAIS - battery multiple performance & verbal subtests to yield Full-Scale IQ. General knowledge, comprehension, arithmetic, similarities, digit span, vocabulary, digit symbol, picture completion, block design, picture arrangement, object assessment.

- NART - developed by Nelson & O’Connell as measure of premorbid IQ when deterioration expected (e.g. early SADT). 50 irregular words, graded frequency; for IQ 90-130.
NART
National Adult Reading Test
Mark only incorrect answers. Total number of errors and level of education (see below) used to calculate final score.

chord
ache
depot
aisle
bouquet
psalm
capon
deny
nausea
debt
courteous
rarely
equivocal
naive
catacomb
gaoled
thyme
heir
radix
assignate
hiatus
subtle
procreate
gist
gouge
superfluous
simile
banal
quadruped
cellist
façade
zealot
drachm
aeon
placebo
abstemious
détente
idyll
puerperal
aver
gauche
topiary
leviathan
beatify
prelate
sidereal
demesne
syncope
labile
campanile

ERRORS:
EDUCATION: 1-3 years 4-8 yrs 9+ yrs
SCORING: Male: 11.6 - 0.6 ED - 3.8 ED
Female: 10.8 - 0.6 ED - 3.8 ED
NEUROPSYCHIATRY UNIT
INSTRUMENTS
(Test - Talk - Watch)
15-20 minutes complete
Includes MMSE patch
5 domains – attention, memory, executive, language, visuocognitive
Cognitive profile
NUCOG Schedule

NUCOG Interview Schedule

A - ATTENTION

4.a. Directions to how the page,

Score

4.b. Elaine’s Persian

Score

4.c. Days of the week to reverse

Score

B - VISUOCONSTRUCTIONAL

5.a. Drawing encapsulation

Score

5.b. Exchanging letters

Score

5.c. Left/right orientation

Score

5.d. Picture

Score

NOTES

SCORE

ATTENTIONAL TOTAL
Ask the subject to correctly name as below, scoring one mark for each out of a total score of five.
*What is this called?* (Examiner points to own shirt/blouse.)
*What colour is this?* (Examiner points to own pants/skirt – item of one colour only.)
*What is this called?* (Examiner points to own watch.)
*What is this called?* (Examiner points to button on clothing, or buckle on belt.)
*What part of the body is this?* (Examiner points to knuckle on clenched fist.)

Score: 5

Attentional Total: 14

Shirt: X
Button: X
Yellow: X
Nail Thing?: X
Timetable: X

2
NUCOG Subject Sheet

NUCOG Subject Completion Page

B.3. Drawing/Understanding:

CLAP YOUR HANDS.

WHAT IS YOUR NAME?
NuCogn Cognitive Profile

Score

Date: __/__/__  NuCogn: ____________

Score

Date: __/__/__  NuCogn: ____________
The NUCOG “Patch”

- Designed to allow MMSE-equivalent score to be extracted from NUCOG
- Two additional items asked, takes <3 minutes, provides MMSE score
- Possible to score 30 on MMSE & have significant NUCOG deficits
NuCog
...your cognitive screening tool.

- Download current version
- Information guide
- Contact us
Case One

- 22 year old student with catatonic state
- Preceding history of presumed encephalitis, supported by MRI & EEG data – left (dominant) temporo-parietal region
- No pathogen identified
- Initially mute, catatonic & psychotic – occasional aggression
- As recovered – significant residual organisational & expressive language difficulties
Case One Profile
Case Two Profile

- 49 year old executive with impairment in work function necessitating stopping work
- Significant reductions in all areas of executive function
- Family history – father & paternal uncle – early onset dementing illness
- MMSE score of 30/30
Case Three Profile

- 52 year old hypertensive chronic alcoholic male
- Previous dysphasia following CVA 2y ago
- Recent R MCA infarct - neglect, impaired spatial memory, constructional dyspraxia; overlaid on marked disinhibition & perseveration
Case Four Profile

- 81 year old woman with prior R MCA aneurysm clipping, presenting with global cognitive impairment +/- acute ischemic event
- CT showing widespread vascular pathology cortically & subcortically
- Marked perseveration on most tests
D - EXECUTIVE

D-1. 3-step command.
With each hand, ask subject to mimic your movements as indicated to the right; demonstrate with each hand first, and ask the patient to demonstrate once with each hand prior to beginning the trial. Ask subject to repeat sequence five times on each hand, and score errors as in the table below. Total score is out of four.

<table>
<thead>
<tr>
<th>Number of errors:</th>
<th>None</th>
<th>1-2</th>
<th>3-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>L hand score:</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>R hand score:</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

D-2. Categorical fluency.
Ask the subject to name as many animals as possible in one minute. Divide total number of animals named by two, with maximum score of ten. Patients may score half marks if the total number of animals is an odd number less than twenty (e.g. 8.5 if the patient names 17 animals).

Give the subject each pair of objects, and tell them: “these objects are alike in some way. How are they similar?” Score each pair according to the table below, with total score out of four.

<table>
<thead>
<tr>
<th>Pineapple &amp; Orange:</th>
<th>Fruit</th>
<th>Food, grow in ground, edible</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Give difference not similarity</td>
<td>0</td>
</tr>
<tr>
<td>Desk &amp; Chair:</td>
<td>Items of furniture</td>
<td>Wooden, have legs</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Give difference not similarity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Painting &amp; Poem:</td>
<td>Works of art</td>
<td>Made, show things, someone does them</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Give difference not similarity</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Oil &amp; Coal:</td>
<td>Forms of energy</td>
<td>From the ground, pay for them</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Give difference not similarity</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

NuCOCG

Interview Schedule
B-1. Drawing reproduction.

B-4. Neglect.

C-2. Spatial Recall.
HOW TO COMPLETE THIS FORM

We would like to collect some information regarding your history and symptoms. This brief questionnaire can be filled in by yourself or with the help of someone else. This person should ideally be someone who lives with you and who has known you well for some time. This questionnaire contains a number of questions: read each question, and then tick the box that matches your best answer to the question. For example, if you have only occasionally had problems forgetting things that you previously found easy to remember, tick the box under the word “occasionally”. Do this for every question on the form, and make sure you complete both sides of the form. If you have any questions, or if there are any you can’t complete, please contact your doctor.

C. OTHER INFORMATION

C-1. How old are you? [ ] [ ] [ ] [ ]
C-2. How many years of formal education did you complete? [ ] [ ] [ ] [ ]

D. DETAILS

If you answered YES to any of the questions in SECTION B, please provide details in the space below.

THANK YOU VERY MUCH FOR YOUR ASSISTANCE.

The information you have provided on this form will be used by your doctor to assist in planning your assessment and care. If you have any questions about this form, or your assessment, please discuss these with your doctor during your appointment.
### 1. AWARENESS OF ENVIRONMENT

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.1</td>
<td>icky-up furniture/objects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.2</td>
<td>sticky objects sticky &amp; effectiveness vary cap</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.3</td>
<td>Adjusts handling of problem (eg. environment, paper, seat placement)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.4</td>
<td>Responds to environmental stimuli (large print, on ball, other object, TV volume)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.5</td>
<td>Does appropriate personal grooming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2. ORGANIZATION

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.1</td>
<td>Tests performed in logical sequence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.2</td>
<td>Completes task before moving on</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.3</td>
<td>Searches for needed items prior to asking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.4</td>
<td>Stares at money for public phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.5</td>
<td>Uses time wisely, neat &amp; systematic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.6</td>
<td>Checks with staff prior to leaving</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3. PROBLEM SOLVING/abstract JUDGEMENT

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.1</td>
<td>Does not always approximate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.2</td>
<td>Chooses appropriate pattern for task</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.3</td>
<td>Completes task in a timely fashion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.4</td>
<td>Shows some logic reasoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.5</td>
<td>Shows good behavior inhibition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.6</td>
<td>Shows impulse control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. MEMORY

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.1</td>
<td>Can repeat nurse’s name (immediate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.2</td>
<td>Remembers but not recent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.3</td>
<td>Knows name of spouse/husband</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.4</td>
<td>Aware of money deficit; dietary facts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.5</td>
<td>Does not see same questions repeatedly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.6</td>
<td>Shows new learning (e.g. unless cup and saucer)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5. LANGUAGE

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>J.1</td>
<td>Comprehends verbal staff instructions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J.2</td>
<td>Corrects names subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J.3</td>
<td>Can understand simple extensions (i.e., conversation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J.4</td>
<td>Stutterssome extension (i.e., conversation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J.5</td>
<td>Communicates with patient/staff appropriately</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6. ACTIVITIES

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>K.1</td>
<td>Can arrange clothes on season (front/back, inside/out)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.2</td>
<td>Uses both upper &amp; lower bodies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.3</td>
<td>Does task in coordinated manner (e.g. stirs both sides to brush teeth)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K.4</td>
<td>Gives appropriate amounts of water &amp; fluids (e.g. sees needs and provides)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 7. MOBILITY

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.1</td>
<td>Feeds himself/herself when transferring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.2</td>
<td>Mobilizes around room</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.3</td>
<td>A voids obstacles with furniture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

If task was .... minutes to complete the task, then 

- **Very Quick** | **Quick** | **Slow** | **Very Slow**

I would rate the BACH memory test as 

- **Normal** | **Docked** | **Abnormal** | **Unable to Rate**

The BACH informed my nursing plan

I was able to understand the patient’s functional deficits

---
Not Enough Time

- **Strategy if you run out:** something general (orientation), something high-yield (clock face), something illness specific; also discuss observational data (general knowledge, vocabulary, recall of recent/remote history etc)
- **Discuss what you would have liked to have done, and why**
- **Generally not excusable in the high-risk for cognitive impairment (elderly, clearly dementing, neurodegen disorders)**
Complex Patient

• Difficulty where obvious evidence of psychiatric disability (e.g. depression, psychosis) co-incident with significant impairment (e.g. executive dysfunction, memory impairment)

• Best approach is to hold two chief possibilities – cognitive impairment related to disease (intrinsic, medication, ECT), or is co-morbid; be prepared to discuss both
Quantitative vs Qualitative

- Important skill of psychiatrist – to integrate findings from all spheres of assessment
- NEVER rely on numbers alone; qualitative data MORE important
- E.g. young male with first psychosis MMSE 19/30 – is he demented?
Blunt Dissections

- Be aware of the limitations of the tools you are using; their specificity and sensitivity
- Most cognitive tools in clinical practice have limitations and are relatively blunt
- Important to be aware of role and necessity for further neuropsychological assessment
- When neuropsychological assessment required – a set of key questions is useful: “is this the pattern of memory impairment seen in chronic alcoholism?” “is this man’s poor motivation and organisational difficulty indicative of frontal lobe disease?”
Pretend Neuropsychological Testing

- At least one examiner’s bugbear!
- Examples – using Trails or complex figures without following standard rules or test designs; then assuming that “test’s poor cousin” performs as well as the test itself.
Taking a Cognitive “History”

• One other examiner: candidates more likely to ask about ideas of self-harm than about leaving the gas on in at-risk patients
• Taking a basic cognitive systems review is often neglected; beware the “pseudo-impaired”/over-reporting patient (somatoform, anxiety, depressed, personality variables)
“Functional” Syndromes & Cognitive Impairment

• Many “functional” syndromes have cognitive concomitants
• Dementia vs depression
• Depression – reduced processing speed, attentional function
• Schizophrenia – reduced global function, (spatial) working memory, dysexecutive function
Integration (Or Lack Thereof)

- Integration of cognitive findings into history, mental state examination, and physical examination critical.
- Role of psychiatrist in most settings is uniquely integrational – the buck often stops with you! Examiners will expect you to play this role.
- Try to understand, not just report, your cognitive findings. How do you understand its origins? How does it relate to their mental illness? What does it mean for treatment planning?
The Role of Baseline

• Understanding of baseline (inferred from work history, vocabulary, education, presentation) critical

• High-flyer who may present well cross-sectionally but be significantly declined; beware as you are not allowed access to the informant!

• The chronically cognitively impaired person who presents cross-sectionally poor but may have “been like this for many years” – e.g. mild mental retardation, developmental disorders
Semi-independence of Domains

• Most cognitive functions are distributed to a significant degree.
• Function does not necessarily equal location.
• Understanding component functions of any item or domain critical; undertaking range of items will allow for pattern to appear.
Regional Specialisation

- L/R - left hemisphere specialized for language & processing verbally coded information (regardless of how info acquired); right hemisphere processes primarily nonverbal information - faces, music - & feeling states, as well as perception of bodies in space (intra/extrapersonal)

- Posterior portions dedicated to perception of body & world beyond it; anterior portions comprise effector systems, specialized for execution of behaviour
Patterns of Syndromes

- Subcortical vs cortical – processing speed, frontal de-afferentiation, extrapyramidal signs
- LBD – course specifiers & psychosis
- Dementia in other disorders (MS, ETOH)
The Good Candidate...

- ...integrates into possible DDx or Rx implications
- ...understands regional syndromes & laterality
- ...understands how different disorders present different patterns
- ...understands limitation of their assessment
- ...understands cognitive risk factors
- ...understands the role of neuropsychology
The Poor Candidate...

- doesn’t do (enough) cognitive assessment
- focuses on “the numbers”
- doesn’t integrate findings into other elements of the assessment
- the opposite of everything in the previous slide
SOME GOOD REFERENCES
Cognitive Assessment for Clinicians

Hodges JR

Oxford University Press, Oxford, 1994

Take-Home Messages

• Have a suite of cognitive tools, understand their limitations
• Practice your assessments, present them frequently, and get used to the “act of integration”
• Peace
Our Sponsors

Lilly
Answers That Matter.

m n c
melbourne neuropsychiatry centre

NorthWestern Mental Health