Bowman Gray Neuropsychiatric Bedside Battery

A Manual for Administration and Scoring

From the Neuropsychiatry Service
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Introduction

The Bowman Gray Bedside Neuropsychiatric Battery (BGBNB) is divided into modules representing ten major areas of cognitive functioning, including:

1. Orientation
2. Language
3. Attention/Concentration/Vigilance
4. Memory
5. Calculation
6. Abstraction
7. Constructional Ability
8. Praxis
9. Frontal Systems
10. Complex Recognition (Gnosis)

To assess this range of abilities, we have chosen 39 individual subtests, some of which are commonly used elements of the mental status and/or neurological exams. This compilation evolved out of our inpatient clinical neuropsychiatric practice, where we have perceived a need for a portable, yet comprehensive screening instrument for the examination of patients with suspected cognitive impairment.

Therefore we have designed the BGBNB to be administered by the clinician at the bedside, or in the office. A modular structure allows one to administer the battery a portion at a time to patients with shortened attention span, agitation, or fatigue who may have difficulty sitting for formal testing. Similarly, once a baseline is established, follow up evaluation can be focused upon certain key modules to monitor overall patient status.

Administration

The BGBNB is meant to be administered at the bedside, with no specialized equipment. For a patient who has relatively few deficits, the battery can be administered in a little over an hour's time. The following is a list of items needed for completion: This manual, a scoring sheet, watch, several pens/pencils, three coins of separate denomination (dime, nickel, quarter), several sheets of blank notebook paper, a key, a pen cap, and worksheets provided. A list of items specific to each module is printed on the individual cover pages.
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In the manual under each subtest the examiner will find specific directions for administration, including the suggested wording for presentation of instructions to the patient. The modules are ordered within the manual for ease of administration, but can be altered to suit individual circumstances. In all but the memory module, the subtests should be administered in the order they are presented in the manual.

The three subtests within the memory module each require that recall be assessed after several time intervals, and so are interspersed among the other modules. The Verbal Memory subtest is the first to be initiated after the examiner has completed the Orientation, Language, and Attention/Concentration/Vigilance modules. The examiner may then proceed with the Calculations, Abstractions and Constructional Abilities modules, interrupting the patient between subtests as necessary to prompt for recall of memorized material.

Certain testing situations will require creative modification of the battery to suit the needs of the individual patient. For instance, while patients with visual impairment, may have to omit the Copying subtest of the Constructional Abilites module and the Reading subtest of the Language module, but hand positions in the Frontal Systems module can be modeled or verbally described for them. Hearing impaired patients have successfully completed the battery with instructions interpreted into sign language; the Rhythm and Go/No Go subtests are modified by tapping on the patient's body. However, we have had difficulty interpreting responses made by patients who communicate in sign language on the Abstractions module. The agitated, irritable or poorly attentive patient may tolerate only a small portion of the battery. In this case, one may want to administer only a single module judged to be of prime importance or a single subtest from each module to obtain an overview of patient functioning and complete the remainder at a later time.

Scoring

There is a numeric value assigned to each subtest and the methodology for arriving at each is specified. For those subtests which are scored as Pass/Fail, Pass = 1 and Fail = 0, respectively. In some cases a judgement is required, such as for scoring the level of abstraction on interpreting proverbs, and rating the adequacy of figure copying. Examples are therefore provided to assist in the scoring of these modules.

The Clinical Summary should be completed on each patient, as it addresses age, level of education, handedness, and other important variables which are needed for interpretation of battery results. A four page Scoring Worksheet is provided to allow rapid and concise recording of the raw data during administration of each of the ten modules.

Anyone who has performed mental status testing can appreciate that some responses by the patient are not easily reduced to a numerical value. We have tried to anticipate where such "qualitative" observations may be seen and prompt for them under each subtest's scoring section. Many neuropsychologists routinely record such observations during standardized testing and use them to modify or extend their interpretation of quantitative results.
"As part of your complete examination I would like you to work with me now on a group of thinking tests. Some of them may seem almost too easy, others you may find more difficult. They are all important, so please try to do your very best on each one."
Clinical Summary

Identifying Information

Name: ____________________________
Age: ___ Sex: ___ Race: ___ Handedness: ___
Marital status: ___ Education (completed years): ___

Past Psychiatric Summary

Current Illness Age of Onset: ___

Previous evaluations:
Year: ___ Center/Clinician: ___ Results/Diagnosis: ___

Current Evaluation Test Summary

Test/Procedure: ____________________________ Date: ___ Results: ___
Pertinent Lab: ____________________________

EEG: ____________________________
Imaging:
CT: ____________________________
MRI: ____________________________
Functional: ____________________________

Neuropsychology: ____________________________
Other Procedures: ____________________________

Psychopathology Rating Scales: ____________________________

Final Diagnosis with Neuropsychiatric Typology

Final Diagnosis: ____________________________ N-P Typology (I-V): ____________________________

Type I: Idiopathic  Type II: Atypical (genetic or developmental)
Type III: Neurophysiologic consequence of Psychopathology
Type IV: Combined psychiatric and neurologic
Type V: A. Neurologic syndrome  B. Medication Associated
Orientation Module

Contents:
  Orientation to Self
  Orientation to Place
  Orientation to Time

Required Materials:
  Examiner knowledge of patient's true home address and birthdate.
Orientation Module

Orientation to Self

Name: "What is your full, complete name?"
__/1 Score: P/F (P = 1, F = 0)

Age: "How old are you?"
__/1 Score: P/F

Birthdate: "What is your birthdate"
__/1 Score: P/F

Orientation to Place

Current location: "What is the name of the place we are in right now?"
__/1 Score: P/F

City: "What city is this?"
__/1 Score: P/F

Home Address: "What is your home address?"
__/1 Score: P/F

Orientation to Time

Date: "What is today's date?"
__/1 Score: P/F. Fail if date incorrect by more than 3 days, or incorrect month or year.

Day: "What is the day of the week?"
__/1 Score: P/F. Fail if day incorrect by more than 1 day, or if gives weekend day for weekday and vice versa.

Season: "What is the season?"
__/1 Score: P/F. Fail if incorrect season given.

Time: "What time is it?" Ask patient to specify AM/PM.
__/1 Score: P/F. Fail if more than one hour from actual time.
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Language Module

Contents:
- Spontaneous Speech
- Comprehension
- Repetition
- Naming
- Reading
- Singing
- Word List Generation

Required Materials:
- Comprehension Subtest
  - Dime, nickel, quarter
  - Sheet of notebook paper
- Naming Subtest
  - Watch
  - Pen
- Reading Subtest
  - Reading material (one)
    - Newspaper
    - Magazine
    - Figure 1
- Word List Generation Subtest
  - Watch or clock for timing
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**Language Module**

**Spontaneous Speech**

Listen closely to patient’s speech during the interview. Spontaneous speech is most likely to follow open ended questions such as "Tell me about why you are in the hospital." or "Describe a typical day." Count the number of words spoken over a ten second period.

__/1 Score: P/F. Fail if fewer than six words over ten seconds.
Qualitative: Note ease of verbalization, average phrase length, presence of paraphasic errors, and prosody.

**Comprehension**

With/To:

Line up a dime, nickel and quarter on a flat surface. Once you have determined that the patient knows each coin by name, ask for the manipulation of them in the following manner:

"With the dime touch the quarter."
"Take the nickel and touch the dime."
"With the quarter, touch the nickel."
"Take the dime and touch the quarter."

__/4 Score: Number of commands correctly performed.
Qualitative: Note incorrect attempts.

Complex commands:

"I'm going to give you a series of instructions. Listen carefully because I can only tell them to you one time. Ready? O.K. First touch the desk, then open the door, then touch the wall, then come back and pick up the most valuable coin."

__/4 Score: Number of commands correctly performed, in their proper order.

Three level commands: (Do not administer if able to pass complex commands #2):

Hold a single sheet of notebook sized paper in front of you. Ask patient: "Take the paper, then fold it in half, and then place it on the floor."

__/3 Score: Number of commands performed in their proper order.

Yes/No: (Do not administer if able to pass any of proceeding commands #1-3)

Ask series of questions which can be answered yes or no, either by nodding head or speaking. "Just answer yes or no to these questions..."

"Does November come before December?"
"Is a coffee pot alive?"
"Is this a hotel?"
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"Do you eat breakfast before dinner?"
"Is the sky blue?"
"Can cats fly?"

__/6 Score: If fewer than 5/6 questions are answered correctly, there is probably a severe comprehension deficit and remainder of battery is likely to be invalid.

Repetition

"I'm going to say some short phrases that I'd like you to repeat after me:"

__/3 Score: Number correctly pronounced.

___ "Methodist Episcopal"
___ "No ifs, ands, or buts about it."
___ "Hopping hippopotamus"

Qualitative: Note incorrect attempts.

Naming

For each part say: "What is the name for this?" If not correct, record the initial response, and ask, "Is there another name for this?" Or, if response is overly general, ask patient to specify. (eg. "What part of the leg is this?") Qualitative data: Note incorrect attempts at naming (paraphasias, perseverations, dysarthria, high frequency "eye" vs. low frequency "knuckles" names.)

Body parts

eye ________ shin ________ teeth _____
thumb ________ knuckles ________

__/5 Score: Number of body parts correctly named.

Watch parts

stem (winder) _____ crystal _____ band _____

__/3 Score: Number of watch parts correctly named.

Pen parts

ball (point) _____ clip _____ cap _____

__/3 Score: Number of pen parts correctly named.

Room parts

wall _____ ceiling _____
floor _____ door _____

__/4 Score: Number of room parts correctly named.
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Reading

Have patient read from newspaper or book if available. Use the reading selections from Figure 1 provided in the test manual if patient has trouble reading from available materials. Note if words are omitted, mispronounced, or substituted.

__/2 Score: Full credit (2 points) if able to read accurately from newspaper, book, or most complex sentence from Figure 1: "It is never too late to make up for lost time."
Moderately impaired (1 point) if can read only simple sentence "Come over here."
Seriously impaired (0 points) if cannot read simple sentence. May have anomia or letter agnosia if unable to name individual letters "SAT" or "905."

Singing

Ask patient to sing a simple song. Some patients need extra encouragement. Begin song and ask patient to join in. May suggest a title: Happy Birthday, Amazing Grace, Jingle Bells.

__/1 Score: P/F. Pass if both tune and words are discernable.

Word List Generation

F-A-S Subtest:
"Next I'd like you to say as many different words as you can think of that begin with the letter 'F'. Names of people and places don't count. Ready? O.K. begin." Time for one full minute. Write down each word spoken to keep a record of perseverative responses. Repeat for the letters "A" and "S".

Score: Number of words for each letter. Number of perseverative errors, contaminations.

"F":
___ Number of words
___ Number of perseverative/contaminated responses

"A":
___ Number of words
___ Number of perseverative/contaminated responses

"S":
___ Number of words
___ Number of perseverative/contaminated responses

Semantic Word List Generation:
"Now I want you say the names of as many animals as you can think of. Ready? O.K., begin."
Time for one full minute. Write down each word spoken.

___ Score: Total number of animals named.
___ Number of perseverative responses.
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Attention / Concentration / Vigilance Module

Contents:
- Digit Span
- "World" in Reverse
- Months in Reverse
- Verbal "A" Test
- Serial Subtraction

Required Materials:
- None
Digit Span

"Now I am going to say some numbers. Listen carefully and when I am finished, please repeat them after me." When patient correctly recites a series forwards, then ask: "Now can you say them backwards?"

72
137
7385 Present 1 per
95246 second, in
613258 montone voice.
4836721

__/7 Score: Forward. Number correct (Normal = 6 +/- 1)
__/7 Score: Reverse. Number correct (Normal = 2 less than forward score)

"World" in Reverse

"I would like you to spell "World" now, like the whole world." If able to spell forward, say: "Now can you spell it backwards?"

__/5 Score: One point for each letter given in correct order. For example, "D-R-L-O-W" would be worth three points. Record the attempt.

Months in Reverse

"Now I'd like you to recite the months of the year, in reverse order." (May repeat instructions to clarify the task and offer initial prompts such as "Begin with December..." "What month comes before December? Now keep going backwards through the year.")

__/12 Score: Number of months in proper order.

Verbal "A" Test

"Listen carefully as I read this list of letters. Each time you hear the letter 'A', I want you to tap the desk with this pencil (or raise hand if no flat surface available.) "Keep your hand down when I say the other letters." (Taken from top line of linear array subtest.) Read one letter per second, in monotone voice: "N X E A P W B V A Q H R Y A K O G M A Z L O"

Score: __/4 Number of correct responses. (Total minus omissions)

_____ Errors of omission (false negative) or perseveration (false positive).
Serial Subtraction

"Now I'd like you to subtract the number seven from one hundred, then seven from that number, and so on until I ask you to stop." (May repeat instructions to clarify the task and offer initial prompts such as "In your head, subtract seven from one hundred." When answers 93, say "Now subtract seven from 93 and keep going.") If able to get 93, allow patient to continue task without prompt or comment, except such general encouragement as "keep going" or "just do your best". If the patient is unable to complete serial sevens to 65, then serial threes from twenty are next attempted. If the patient is unable to perform serial threes, then simple counting backwards from twenty by ones is next attempted.

Score: Number of correct serial subtractions; record actual responses.

__/5 Sevens
__/5 Threes
__/5 Ones
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Memory Module

Contents:
  Verbal Memory
  Visual Memory
  Three-Shape / Three-Word Memory

Required Materials:
  All Subtests
    Watch or clock for timing
  Visual Memory Subtest
    Four recognizable objects, preferably belonging to the patient.
  Three-Shape / Three-Word Memory Subtest
    Three-Shape / Three-Word Sheet
    Four sheets notebook paper
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Memory Module

The memory module consists of three memory subtests each of which requires the patient to first register memory items, then to recall them after five, ten and thirty minute intervals have elapsed. Subtests from other modules can be administered in the interim. A suggested order for administration is to begin the Four Words subtest and move next to the remaining modules, interrupting them if necessary.

Verbal Memory

"I'd like you to remember a list of four words. These four words are: book, chair, window, carrot. Can you say them back to me?" Examiner can repeat the list up to two more times until patient demonstrates full registration (ability to repeat the full list accurately). If able to fully register at least three words, reinforce need to remember these words. "I'm going to ask you to repeat those words several times in the next half an hour, and we'll be doing other things in the meantime, so why don't you say them once more so we know you're really ready to remember all four words." Write down clock time as reference for delayed recall.

Registration.

__/4 Score: Number of words correctly registered (repeated). Note number of trials (up to three) required to learn full list.

Recall at 5, 10, and 30 minutes: "Can you remember now the list of four words from before?"

Score: Number of words recalled without cues at each time point.

__/4 Five minutes
__/4 Ten minutes
__/4 Thirty minutes

Cued recall: For words patient unable to recall after each time frame, select from the list of cues presented below. Try to alternate between semantic and phonemic cues so that patient has one cue per word at any one time. For example, if patient misses book and carrot, might say: "One word starts with buh." Whether or not patient recalls "book", would next say: "One word sounds like parrot." Could then return to semantic cue with book: "One word is something to read"

<table>
<thead>
<tr>
<th>Word</th>
<th>Semantic Cues</th>
<th>-</th>
<th>Phonemic Cues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book</td>
<td>Something to read</td>
<td>-</td>
<td>Starts with &quot;BUH&quot;</td>
</tr>
<tr>
<td>Chair</td>
<td>Something to sit on</td>
<td>-</td>
<td>Starts with &quot;CH&quot;</td>
</tr>
<tr>
<td>Window</td>
<td>Something to look through</td>
<td>-</td>
<td>Sounds like &quot;MINNOW&quot;</td>
</tr>
<tr>
<td>Carrot</td>
<td>A vegetable</td>
<td>-</td>
<td>Sounds like &quot;PARROT&quot;</td>
</tr>
</tbody>
</table>

Score: Number of words recalled with cueing at each time point.

Qualitative: Note word and cue which prompted recall.

__/4 Five minutes
__/4 Ten minutes
__/4 Thirty minutes
Visual Memory
Gather up four objects, ideally personal belongings of the patient (wallet, watch, ring, comb). Tell the patient "I'm going to hide each of these objects in a different place around the room. Later, I'll ask you what they are and where they are hidden." Allow patient to watch each item being hidden and reinforce verbally: "I'm putting the wallet under the pillow." See that the patient has registered each object in its correct location and again reinforce the task of remembering the object and the location. After five minutes engaged in other tasks, ask the patient, "Tell me where I put each of your belongings." For those unremembered, can give one of two types of cues, location or object, and see if the other can be remembered. "Where did I put the wallet?" "What did I put under the pillow?"

_/_4 Score: Number of objects recalled
_/_4 Score: Number of locations recalled
___ Score: Number of cues required

Three-Shape / Three-Word Test
Show patient the three-shape/three-word figure.

Copy: "Please copy these three shapes and three words exactly as you see them." When completed, cover or turn paper over so that patient cannot see the figure.

_/_3 Score: Number of shapes accurately copied.
_/_3 Score: Number of words accurately copied.

Patients with significant constructional dyspraxia can be excluded from the remainder of the subtest.

Incidental: "Now see what you can remember from what you just copied. Can you draw exactly as you remember?" If patient able to recall all six elements, then go to the recall task.

_/_3 Score: Number of shapes recalled accurately.
_/_3 Score: Number of words recalled accurately.

Criterion: If unable to recall all elements incidentally, then patients are shown the original figure for thirty seconds with the instruction to remember. The figure is then removed and the patient given the opportunity to reproduce all the elements on a fresh sheet of paper. This process is repeated until the patient is able to recall five of the six items, or until five separate study periods have elapsed. At either of these points, the instruction is given to remember the figures for future recall. Note the time for recall segment of the subtest.

__ Score: Number of trials needed to reach criterion

Delayed Recall: After the five, ten and thirty minutes of elapsed time, tell the patient, "It is time now to remember the shapes and words you copied earlier. Here is a paper on which to draw and write them."

Score:
5 minutes __/3 shapes __/3 words
15 minutes __/3 shapes __/3 words
30 minutes __/3 shapes __/3 words
Calculations Module

Contents:
  Calculations

Required Materials:
  Paper
  Pencil or pen
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Calculations Module

"Now I'd like you to work some arithmetic problems. Some you may know and others may be more
difficult. I will read them aloud to you. Try to do them in your head if you can, but here is some paper if
you wish to write them down."

\[
\begin{align*}
5 + 6 &= \_\_\_ \quad (11) \\
26 + 17 &= \_\_\_ \quad (43) \\
4 \times 6 &= \_\_\_ \quad (24) \\
5 \times 13 &= \_\_\_ \quad (65)
\end{align*}
\]

\text{__/4 Score: Total number correct.}
Abstract Thinking Module

Contents:
- Idioms
- Similarities
- Proverbs

Required Materials:
- None
Abstract Thinking Module

Idioms
"I am going to read you a saying which you may or may not have heard before. Please tell me in your own words what you think it means." Write down patient's response to each of the following.

"A stone's throw"

_/1 Score: P/F. Pass a response that incorporates the concept of something being nearby.

"Under the gun"

_/1 Score: P/F. Pass a response indicating stress or time constraint.

"Two shakes of a lamb's tail"

_/1 Score: P/F. Pass a response that indicates a short period of time.

"Up to snuff"

_/1 Score: P/F. Pass a response that indicates adequacy.

"On the bright side"

_/1 Score: P/F Pass a response that incorporates the concept of optimism.

Similarities
"For this next part, I will ask you how two different things might be alike. For instance, I could ask you how a dog and a cat are alike, and you might say they are both housepets. How are a ________ and a ________ alike?"

Turnip & cauliflower
Rate: concrete - "Buy them in the store."
"They have calories."
"Wash them."
semiabstract - "Food."
"Grow in the ground."
"Eat them."
abstract - "Vegetables."

Desk & bookcase
Rate: concrete - "Made out of wood."
"Sit at the desk and put books in the bookcase."
semiabstract - "Household objects."
"In the living room."
"You can put a book on them."
abstract - "Furniture."
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_Horse & Apple_
Rate: concrete - "Horses eat apples."
"We use them."
"One is big and one is small."
semiabstract - "Both grow."
"Both need food."
"Part of nature."
abstract - "Both are living things."

_Raindrop & Ocean_
Rate: concrete - "One is big and one is small."
"It rains at the beach."
semiabstract - "Both are wet."
"Rain goes into rivers which goes into the ocean."
abstract - "Both are made of water."

Score: Number of abstract responses
Number of semi-abstract responses
Number of concrete responses

Proverbs
"I am going to read you a saying which you may or may not have heard before. Please tell me in your own words what people mean when they say this." Write down verbatim the patient's response to each of the following. If gives concrete response, ask "Is there another way to explain the proverb?"

"A drowning man will clutch at a straw"
Rate: concrete - "Don't let go when you're in the water."
"He's trying to save himself."
"That guy will grab anything."
semiabstract - "Self-preservation is important."
"It's a last resort."
"Nobody wants to die."
abstract - "A man in trouble will try anything to get out of it."
"A person who is losing will use almost any method to get ahead."
"If sufficiently desperate, a man will try anything."

"Rome wasn't built in a day"
Rate: concrete - "It took a long time to build Rome."
"You can't build cities overnight."
semiabstract - "Don't do things too fast."
"You have to be patient and careful."
"Can't learn everything right away."
abstract - "Great things take time to achieve."
"If something is worth doing, it is worth doing it carefully."
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"A golden hammer will break an iron door"
Rate: concrete - "Gold can't break iron."
   "Gold is too soft to break a door."
   "Hammers can break down doors."
semiabstract - "Money wins everything."
   "The harder something is, the more you have to work to get it."
abstract - "Virtue conquers all."
   "If you have sufficient knowledge, you can accomplish even the most difficult."

"The hot coal burns, the cold one blackens."
Rate: concrete - "Hot coals will burn you and leave it black."
   "Hot coals will get black when they're cold."
semiabstract - "You can get trouble from both."
   "Getting burned and dirty are both bad."
abstract - "Extremes of anything can be bad."
   "There may be bad aspects to things that appear good."
   "One should be careful and not impetuous in any situation."

"The thief always thinks his hat is on fire."
Rate: concrete - "You shouldn't steal."
   "A thief is going to get burned."
semiabstract - "Crime doesn't pay."
   "Getting burned and stealing are both bad."
abstract - "When you're feeling guilty about something, you think you're the center of attention."
   "You can't hide from yourself."
   "Dishonesty leads to insecurity."

__/5 Score: Number of abstract responses
__/5 Number of semi-abstract responses
__/5 Number of concrete responses
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Constructional Ability Module

Contents:
- Figure Copying
- Alternating Waveform
- Cancellation Test

Required Materials:
- Figure Copying
  - Worksheet 1
- Alternating Waveform
  - Worksheet 2
- Cancellation Test
  - Worksheet 3 - The Linear Array
  - Worksheet 4 - The Random Array
- Watch or clock for timing
Constructional Ability Module

Ideally, for tests of constructional ability, patient should have firm surface on which to draw, and be sitting upright. There should be adequate lighting and if patient normally wears corrective lenses, they should be available.

Figure Copying

"Please draw these designs exactly as they appear to you. You can draw them on the same page" (Figure 1)

*Horizontal Diamond*

\[\frac{2}{3}\] Score: 0-3: (Poor, Fair, Good, Excellent.)

*Cross*

\[\frac{2}{3}\] Score: 0-3: (Poor, Fair, Good, Excellent.)

*Cube*

\[\frac{2}{3}\] Score: 0-3: (Poor, Fair, Good, Excellent.)

*Pipe*

\[\frac{2}{3}\] Score: 0-3: (Poor, Fair, Good, Excellent.)

*Clockface:*

On command:
"From your memory, please draw a clockface, and fill in all the numbers." If able to complete this, then say, "Now put in the hands to read ten minutes after eleven"

\[\frac{2}{3}\] Score: 0-3: (Poor, Fair, Good, Excellent.)

Copy (Figure 2):
"Please copy this drawing exactly as it appears to you."

\[\frac{2}{3}\] Score: 0-3: (Poor, Fair, Good, Excellent.)

**Alternating Waveform**

Show patient the alternating waveforms figure. "Please copy this design exactly as you see it." When the patient copies it correctly, state: "Now continue the same pattern to the edge of the paper."

\[\frac{1}{1}\] Score: P/F.

Qualitative: Note the presence of perseverative errors, loss of set, loss of baseline, contaminations.
Cancellation Test

"In this next test, go through all the letters on this page and circle each letter A that you find. Take as much time as you need to find them all but I'll be timing you so let me know as soon as you are finished. Are you ready? O.K. begin." Present the linear array first and then the random array. Note time patient begins and finishes. Notice the pursuit strategy used to find letters (horizontal, vertical, random, other). Bisecting the page vertically and horizontally into four quarters yields fifteen A's in each quarter, which is the same for both the linear and random arrays. Note errors of commission (false positive) and omission (false negative), and score as a total for each quarter.

Linear array
Score:
|| Time to complete
Errors:
| Upper Left |
| Lower Left |
| Upper Right |
| Lower Right |
Qualitative: pursuit strategy

Random array
|| Time to complete
Errors:
| Upper Left |
| Lower Left |
| Upper Right |
| Lower Right |
Qualitative: pursuit strategy
Praxis Module

Contents:
- Buccolingual Praxis
- Limb Praxis
- Whole Body Praxis

Required Materials:
- None
Buccolingual Praxis

"Can you show me how you whistle."

__/1 Score: P/F.

Limb Praxis

Test each action first with the non-preferred hand, then with the preferred hand. Do not allow patient to restate the instruction. Qualitative Data: Note whether performance is awkward or smooth, whether the action is performed with equal contribution from the proximal and distal musculature, or if the hand or finger is used as the object. Also note inability to perform the action without verbalizing the task. Any deviation from the properly executed movement is scored as a failure.

Toothbrush:
"Make believe you have a toothbrush in your (left or right) hand and show me how you would use it."

__/1 Score: P/F. Right Hand
__/1 Left Hand

Hammer:
"Make believe you have a hammer in your (left or right) hand and show me how you would use it."

__/1 Score: P/F. Right Hand
__/1 Left Hand

Coin:
"Make believe you have a coin in your (left or right) hand and show me how you would flip it."

__/1 Score: P/F. Right Hand
__/1 Left Hand

Whole Body Praxis

Archer:
"For this next part, you will need to stand up and use your whole body. Please imitate the stance of an archer as he prepares to shoot an arrow."

__/1 Score: P/F.

Bowler:
"Now show me how a bowler rolls the ball toward the pins."

__/1 Score: P/F.
Bowman Gray Neuropsychiatric Bedside Battery

**Frontal Systems Module**

**Contents:**
- Fist / Ring Test
- Three-Step Motor Task
- Simultaneous Alternating Movements
- Rhythm Tapping
- Go / No Go Paradigm

**Required Materials:**
- Rhythm Tapping and Go / No Go Paradigm
  - Pencil or pen to tap out rhythm
**Bowman Gray Neuropsychiatric Bedside Battery**

**Frontal Systems Module**

**Fist / Ring Test**

"Now I would like you to make a tight fist, then open your hand and curl your thumb and forefinger to make the shape of a ring." Demonstrate. "Now you try it. Keep going back and forth until I ask you to stop." Observe for about fifteen seconds and note whether fist and ring shapes are properly formed. In the ring position, the third, fourth and fifth fingers should be extended, and the thumb and forefinger approximating a circle. (May correct once by repeating directions and demonstration, if necessary.)

\[
\begin{array}{c}
\text{/1 Score: P/F. Right Hand.} \\
\text{Qualitative: Note inability to get started, inability to maintain proper sequence, and speed of performance.}
\end{array}
\]

**Three-Step Motor Task**

"Now I want you to gently hit the top of the desk. First with your fist, then with your open palm, then with the side of your hand." Demonstrate. "Now you do it, until I tell you to stop." Allow patient to continue for about 15 seconds. (May repeat demonstration and directions, if necessary.)

\[
\begin{array}{c}
\text{/1 Score: P/F. Right Hand.} \\
\text{Qualitative: Note inability to get started, inability to maintain proper sequence, and speed of performance.}
\end{array}
\]

**Simultaneous Alternating Movements**

"Place both your hands on the table, one in a fist and one with your fingers extended and your palm down. Now alternate the positions of your hands as fast as you can, back and forth." Demonstrate. Observe for 15 seconds.

\[
\begin{array}{c}
\text{/1 Score: P/F. Right Hand.} \\
\text{Qualitative: Note again the speed and quality of the movements ie. are they performed simultaneously?}
\end{array}
\]
Bowman Gray Neuropsychiatric Bedside Battery

Rhythm Tapping

"I'm going to tap under the table with my pencil. With your pencil, tap out the same rhythm that I do."
(If unable to tap out of sight of patient, ask them to close eyes.)

Musical Notation | Morse Code
--- | ---
\( o o o o o \) | Dash Dot Dot Dash Dash
\( o o o o o \) | Dash Dash Dash Dot Dot
\( o o o o o \) | Dot Dot Dash Dash Dash
\( o o o o o \) | Dash Dash Dot Dot Dash

Score: Number of rhythms correctly repeated.

\(/4\) Right Hand.
\(/4\) Left Hand.

Go / No Go Paradigm

"Now, I'd like you to tap your pencil on the table when you hear a tapping sound I will make underneath the table. If you hear one tap, then you tap twice, if you hear two taps, then you tap once." Conduct three trials of each number of taps, alternating in a random fashion. (eg. 1-2-2-1-2-1).

Score: Number of correct responses.

\(/6\) Right Hand.
\(/6\) Left Hand.
Perceptual Recognition (Gnosis) Module

Contents:

- Right / Left Orientation
- Finger Identification
- Double Simultaneous Stimulation
- Stereognosis
- Graphesthesia

Required Materials:

- Stereognosis
  - Key
  - Pen cap
  - Quarter
  - Dime
- Graphesthesia
  - Pen for tracing letters
Bowman Gray Neuropsychiatric Bedside Battery

**Gnosis Module**

**Right / Left Orientation**

*On self:*

- __/1__ Score: P/F. "Show me your left foot."
- __/1__ Score: P/F "Show me your right hand."
- __/1__ Score: P/F "Show me your left knee."
- __/1__ Score: P/F "Show me your right ear."

*On examiner:*

- __/1__ Score: P/F. "Point to my right foot."
- __/1__ Score: P/F "Point to my left hand."
- __/1__ Score: P/F "Point to my right knee."
- __/1__ Score: P/F "Point to my left ear."

**Finger Identification**

"Put your hands on the table with palms down and fingers spread like this." (Demonstrate.) Point to each of the patient's fingers (without touching) and ask for the name of each. "What is this finger called?"

*Right Hand:*

- __/1__ Score: P/F Thumb
- __/1__ Index finger (forefinger)
- __/1__ Middle finger
- __/1__ Ring finger
- __/1__ Pinky (little finger)

*Left Hand:*

- __/1__ Score: P/F Thumb
- __/1__ Index finger (forefinger)
- __/1__ Middle finger
- __/1__ Ring finger
- __/1__ Pinky (little finger)

If patient makes significant errors, and is not aphasic, ask patient, "Close your eyes. I am going to touch one of your fingers. Point to the finger I just touched." (May open eyes to point to finger.)
Bowman Gray Neuropsychiatric Bedside Battery

Double Simultaneous Stimulation
"I want you to close your eyes and tell me where I am touching you." Touch patient very lightly (light touch, not deep touch) first on each hand and each cheek to confirm intact sensory system. Patient should answer with the body part and the side (eg. "left hand"). Then touch two body parts simultaneously in the following manner:

Score: P/F if able to name each body part.

__/1  Right hand/left hand  
__/1  Right hand/right cheek
__/1  Right hand/left cheek
__/1  Left hand/left cheek
__/1  Left hand/right cheek

Stereognosis
"I'm going to put some objects in your hands. With your eyes closed, can you tell me what each of them is?"

Score P/F. Write down attempts to identify.

Left hand:
__/1  Key
__/1  Quarter
__/1  Pen cap
__/1  Dime

Right hand:
__/1  Pen cap
__/1  Dime
__/1  Key
__/1  Quarter

Graphesthesia
Ask patient to put hands on the table palms up. "I'm going to trace some letters on the palm of your hand with the cap of this pen. It won't leave any marks. They will be all capital letters and will be facing you just as if you were reading them." Demonstrate with eyes open. "Now, with your eyes closed, I want you to tell me what letter I'm tracing." If patient fails to correctly identify, do not repeat letter drawing, but go on to next letter saying, "Here is another letter for you to try."

Score: P/F.

Left hand:
__/1  "L"
__/1  "O"

Right hand:
__/1  "J"
__/1  "T"
Neuropsychiatric Observations Module

Contents:
- Appearance
- Affect
- Speech and Thought Processes
- Delusions
- Perceptual Function
- First Rank Signs
- Insight
- Judgement
- Neuromotor Examination

Required Materials:
- None
# Bowman Gray Neuropsychiatric Bedside Battery

## Neuropsychiatric Observations

### Appearance

<table>
<thead>
<tr>
<th></th>
<th>Alert</th>
<th>Drowsy</th>
<th>Stuporous</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consciousness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Manner</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Body Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hygiene</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Apparent Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eye Contact</strong></td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
</tr>
</tbody>
</table>

### Affect

<table>
<thead>
<tr>
<th>Qualities of Mood</th>
<th>Sad</th>
<th>Happy</th>
<th>Irritable</th>
<th>Anxious</th>
<th>Apathetic</th>
<th>Angry</th>
<th>Euthymic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range:</strong> ( # Mood states/qualities displayed)</td>
<td>Constricted (One mood)</td>
<td>Full (Euthymia or 2 other mood states)</td>
<td>Expansive (3 or more mood states)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intensity:</strong></td>
<td>Decreased</td>
<td>Moderate</td>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stability:</strong></td>
<td>Stable</td>
<td>Somewhat Labile</td>
<td>Extremely Labile</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Appropriateness:</strong></td>
<td>Fully Appropriate</td>
<td>Somewhat Appropriate</td>
<td>Inappropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Relatedness:</strong></td>
<td>Well Related</td>
<td>Somewhat Related</td>
<td>Unrelated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Speech and Thought Processes

<table>
<thead>
<tr>
<th>Rate of Speech:</th>
<th>Decreased</th>
<th>Regular</th>
<th>Increased</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluency:</strong></td>
<td>Decreased (Hypoverbal or Mute)</td>
<td>Normal (Conversational)</td>
<td>Pressured (Difficult to Interrupt)</td>
</tr>
<tr>
<td><strong>Articulation:</strong></td>
<td>Normal</td>
<td>Dysarthric</td>
<td>Stuttering</td>
</tr>
<tr>
<td><strong>Associations:</strong></td>
<td>Tight</td>
<td>Non-sequitur</td>
<td>Clanging</td>
</tr>
<tr>
<td><strong>Intelligibility:</strong></td>
<td>Complete</td>
<td>Drivelng</td>
<td>Rambling</td>
</tr>
<tr>
<td><strong>Continuity:</strong></td>
<td>Continuous</td>
<td>Derailment</td>
<td>Perseveration</td>
</tr>
<tr>
<td><strong>Content:</strong></td>
<td>Suicide</td>
<td>Aggressive</td>
<td>Grandiose</td>
</tr>
</tbody>
</table>
# Bowman Gray Neuropsychiatric Bedside Battery

## Delusions

<table>
<thead>
<tr>
<th>Type:</th>
<th>Primary</th>
<th>Secondary (Arising from a hallucination)</th>
<th>Delusional Mood (&quot;Something's not right&quot;)</th>
<th>Delusional Perception (True perception stimulates false belief)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content:</td>
<td>Grandiose</td>
<td>Persecutory</td>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>Conviction:</td>
<td>High (Fixed)</td>
<td>Moderate</td>
<td>Low (Doubtful)</td>
<td></td>
</tr>
<tr>
<td>Extension:</td>
<td>High (Multiple Agents/Settings)</td>
<td>Moderate</td>
<td>Low (Single Agent/Setting)</td>
<td></td>
</tr>
<tr>
<td>Bizarreness:</td>
<td>Highly Bizarre</td>
<td>Somewhat Strange</td>
<td>Mundane</td>
<td></td>
</tr>
<tr>
<td>Pressure:</td>
<td>High (Frequent, unprompted reference)</td>
<td>Moderate</td>
<td>Low (Mentions upon probing)</td>
<td></td>
</tr>
<tr>
<td>Organization:</td>
<td>Highly structured</td>
<td>Somewhat structured</td>
<td>Unstructured</td>
<td></td>
</tr>
</tbody>
</table>

## Perceptual Disturbance

<table>
<thead>
<tr>
<th>Sensory Modality:</th>
<th>Auditory</th>
<th>Visual</th>
<th>Tactile</th>
<th>Olfactory</th>
<th>Gustatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character:</td>
<td>Elementary (Unformed or unidentifiable)</td>
<td>Illusory (Associated with true stimuli)</td>
<td>Incomplete (Muffled voice)</td>
<td>Complete (Clear voice outside head)</td>
<td></td>
</tr>
</tbody>
</table>

## First Rank Symptoms

<table>
<thead>
<tr>
<th>Thought broadcasting (&quot;Thoughts coming out of your head so loud others can hear&quot;)</th>
<th>Experiences of influence (Being controlled by someone or something.)</th>
<th>Experiences of alienation (Body parts, movements or thoughts seem foreign, not own)</th>
<th>Complete auditory hallucinations (Voices outside of head, commenting on behavior)</th>
<th>Delusional Perceptions (True perception stimulates false belief)</th>
</tr>
</thead>
</table>

## Insight and Judgement

<table>
<thead>
<tr>
<th>Insight:</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgement:</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
</tr>
</tbody>
</table>
### Neuro-motor Exam

<table>
<thead>
<tr>
<th>Gait - Stride Length:</th>
<th>Normal</th>
<th>Decreased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gait - Arm Swing:</td>
<td>Normal</td>
<td>Decreased</td>
</tr>
<tr>
<td>Gait - Balance:</td>
<td>Normal</td>
<td>Decreased</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Global Movement:</th>
<th>Hypoactive/Retarded</th>
<th>Normoactive</th>
<th>Hyperactive/Agitated</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Adventitial Movements:</th>
<th>Akathesia</th>
<th>Tics</th>
<th>Myoclonus</th>
<th>Chorea</th>
<th>Ballismus</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Catatonic Features:</th>
<th>Stupor</th>
<th>Waxy Flexibility</th>
<th>Echopraxia</th>
<th>Negativism</th>
<th>Posturing</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DTR's:</th>
<th>Bicep</th>
<th>Tricep</th>
<th>Brachioradialis</th>
<th>Patellar</th>
<th>Achilles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right:</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>Left:</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Muscles:</th>
<th>Upper Extremities</th>
<th>Lower Extremities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength - Right Side:</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Strength - Left Side:</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Tone - Right Side:</td>
<td>Rigid Normal Hypotonic</td>
<td>Rigid Normal Hypotonic</td>
</tr>
<tr>
<td>Tone - Left Side:</td>
<td>Rigid Normal Hypotonic</td>
<td>Rigid Normal Hypotonic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sensory:</th>
<th>Intact</th>
<th>Abnormal (Describe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebellar:</td>
<td>Intact</td>
<td>Abnormal (Describe)</td>
</tr>
</tbody>
</table>