Aphasia Classification and Assessment

Judith Robillard Shultz MSc. SLP(C)
Speech-Language Pathologist
MGH-MUHC
Purpose of Assessment

- Determine if aphasia is present or absent
- Distinguish it from other related conditions
  - Motor speech disorders
  - Cognitive-communication disorders
Lecture goals

- Components of communication and normal language processing
- Syndromes of aphasia
- Features of related conditions
- Common assessment tools, diagnostically relevant tasks
- How to communicate with an aphasic patient
Definition of Aphasia

Disturbance of language caused by brain damage affecting:

- Comprehension
  - auditory
  - reading
- Expression
  - speaking
  - writing
Important Distinctions

- Language
  - Vocabulary, grammar..

- Speech
  - Movement tongue, lips....

- Cognition
  - Attention, memory, problem solving....
Theoretical Basis for Classification of Aphasia: Boston Classification (Kertesz & Poole; Goodglass & Kaplan)

- A contemporary localizationist view
  - Language localizable in the brain
- Perisylvian region in the left hemisphere
  - anterior language zone = left frontal lobe
  - posterior language zone = left temporal/parietal lobes
Boston Classification

- Consists of cortical centers and connecting pathways
- Aphasia Syndromes
  - Broca, Wernicke, Global
  - Conduction, TC Motor, TC Sensory, Mixed TC
  - Anomic
- Supplied by left MCA
  - Anterior and posterior branches, main trunk
Seven Components of the Wernicke-Geschwind Model

- Broca's area
- Primary motor cortex
- Arcuate fasciculus
- Primary auditory cortex
- Wernicke's area
- Angular gyrus
- Primary visual cortex
How the Brain Performs Language

- Comprehension of Language
  - How is it accomplished?
Seven Components of the Wernicke-Geschwind Model

- Primary motor cortex
- Arcuate fasciculus
- Broca's area
- Primary auditory cortex
- Wernicke's area
- Angular gyrus
- Primary visual cortex
How the Brain Performs Language

Comprehension of Speech

- Ears
- Auditory Cortices
- Wernicke’s area
- Constructs an overall meaning
  - Assigns meaning to words/relation among words
- Evaluates the context (literal vs figurative meaning)
How the Brain Performs Language

Reading Comprehension

- Eyes
- Visual Cortices
- Wernicke’s area
How the Brain Performs Language

- Spontaneous Spoken Language?
Seven Components of the Wernicke-Geshwind Model

- Primary motor cortex
- Arcuate fasciculus
- Broca’s area
- Primary auditory cortex
- Wernicke’s area
- Angular gyrus
- Primary visual cortex
How the Brain Performs Language

Spontaneous Spoken Language

- Wernicke’s area retrieves words, sentence structure
- Sends it to Broca’s area via the Arcuate Fasciculus
- Broca formulates an action plan
- Sends plan to primary motor cortex
- Primary motor cortex refines it and sends to the cranial nerves for speech muscles via the pyramidal system
How the Brain Performs Language

- What single language task tests the entire circuit?
Seven Components of the Wernicke-Geshwind Model

- Broca's area
- Primary motor cortex
- Arcuate fasciculus
- Primary auditory cortex
- Wernicke's area
- Angular gyrus
- Primary visual cortex
How the Brain Performs Language

Repetition (tests the entire language circuit)
- Primary auditory cortex
- Wernicke
- Broca via the AF
- Broca recodes into articulatory plan
- Primary motor cortex
- Pyramidal system to CNs
How the Brain Performs Language

Oral Reading

- Visual Cortex to Wernicke and the same processes as for repetition follows

Writing

- Wernicke via AF to premotor cortex for arm and hand, movement planned, sent to motor cortex
Boston Classification: Key Diagnostic Distinctions

Fluent vs Nonfluent Aphasia

- Speech fluency
  - Prosody, melody, rate, pauses
- Subtypes further distinguished by:
  - Repetition
  - Language Comprehension
- Paraphasia
Boston Classification: Key Diagnostic Distinctions

- **Paraphasia**
  - Literal/phonemic = shooshbruss/toothbrush; tevilision/television
  - Verbal/semantic = table for chair, cranberry for teapot
  - Neologism = chantlast/refrigerator
  - Perseverative = comb, fork/toothbrush, comb/key
Boston Classification: Fluency Dimension

- **Nonfluent Aphasia**
  - Lesions to anterior portion of language center of dominant hemisphere
  - Slow, effortful, pauses, disturbed prosody

- **Fluent Aphasia**
  - Lesions to posterior language center of dominant hemisphere
  - Effortless with normal/fast rate, good intonation and stress patterns
Nonfluent aphasias: subtypes

Broca’s aphasia

- Comprehension
  - Relatively preserved, some difficulty with complex syntax
  - Reading comprehension relatively spared

- Expression
  - Slow & effortful production
  - Limited word output
  - Four words or less per utterance
  - Frequent perseverations
  - Agrammatic
  - Writing usually parallels oral expression

- Repetition
  - Poor
Seven Components of the Wernicke-Geschwind Model

- Broca's area
- Primary motor cortex
- Arcuate fasciculus
- Primary auditory cortex
- Wernicke's area
- Angular gyrus
- Primary visual cortex
Transcripts: Cookie Theft
Broca’s Aphasia

“Water dripping…. Boy…. Girl…. Okay…. Okay…. Mother…Mother” (Clinician prompt..What’s going on?) “No”.
Assessment severe non-fluent aphasia

- 48 year old male
- Received tPA
- Infarct = left frontal inferior and medial gyri and temporal-parietal operculum
- Yes/no only speech output
- Accurate yes/no responses to personally relevant questions
- Gesturing to express himself
- Right arm weakness
Nonfluent aphasias

- Accompanied by:
  - Apraxia of speech
  - Dysarthria
  - Right hemiplegia affecting lower half of face and arm more than leg

- Lesion Site:
  - Broca’s area
  - Extending to primary motor cortex or parietal lobe
Nonfluent Aphasias

- **Global Aphasia**
  - Severe language deficits in all modalities
  - Responds to personally relevant language
  - Responds to nonverbal cues
  - Automatic speech may be preserved
  - Verbal stereotypes common
  - Extensive (L) hemisphere lesion involving Broca’s and Wernicke’s area
Neurophysiology of brain damage and the neurological exam
Nonfluent aphasia

Transcortical Aphasias (TCM nonfluent; TCS fluent)

- Preserved repetition
- Spare central language areas, disconnects from rest of brain
- Watershed, borderzones
Nonfluent aphasia

Transcortical Motor:
- Lesion = anterior and superior to Broca’s area
- Reduced speech output, good auditory comprehension, striking ability to repeat
- Reduced speech output
  - Frontal lobe dysfunction (initiation, maintenance)
  - Brief answers when highly structured (e.g., “tell me the name of the hospital” vs. “tell me what you think of the hospital”)
  - Pathological inertia
Non-Fluent Aphasia

- Mixed Non-fluent
  - Resembles Broca but auditory comp below 50th percentile
  - Auditory comprehension too good to be global
  - Not good enough to classified as Broca
Fluent Aphasias

Wernicke’s aphasia

- Comprehension (auditory & reading) impaired
- Oral Expression:
  - fluent, well-articulated, good prosody
  - rapid rate
  - incessant (logorrhea, press of speech)
  - verbal and literal paraphasias
  - neologisms
  - “empty speech”
  - paragrammatic
- Repetition poor
- Lack of awareness
- Lesion site: temporo-parietal region involving Wernicke’s area and adjacent white matter
Seven Components of the Wernicke-Geshwind Model

- Broca's area
- Primary motor cortex
- Arcuate fasciculus
- Primary auditory cortex
- Wernicke's area
- Angular gyrus
- Primary visual cortex
Wernicke’s Aphasia  BDAE
That’s on fairble my own. Clinician: yes, your family. Stuck at that feek already.. On the fff..starting to goof uf already….Clinician: ok, do you have a large family? Do you have a big family? No, yes well there’s 3, 4-4 all told but we only see masically once of a time at home and 2 of them occasionally at home..the other 3rd well he’s always away at ff foam but masically on on the boys always failing…he’s living at home and belonging to the future show. Clinician: There not all at home all at once? Just one at home all the time, he goes to… goes to school?..it’s a high school , it’s like a hymn school like I don’t know what you call it…ffffforgetting and Kathy’s she’s a married man and has a daughter at home.. a new daughter.. The other girl is seeing her boyfriend but going give a poy part with her parents. And what does your wife do?
 Fluent aphasias

- Conduction aphasia
  - Repetition
    - disproportionately severe
    - worsens with length of stimuli
  - Comprehension: relatively good
  - Expression:
    - word finding errors and produce literal/phonemic paraphasias
    - “conduite d’approche” (lumpily, lutikly…)
Fluent aphasias

- **Awareness:**
  - Self correction, disturbed prosody

- **Lesion site:**
  - Arcuate fasciculus
  - Disconnects Wernicke’s area from Broca’s area
Seven Components of the Wernicke-Geschwind Model

- Broca's area
- Primary motor cortex
- Primary auditory cortex
- Wernicke's area
- Angular gyrus
- Arcuate fasciculus
- Primary visual cortex
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>artic agility</td>
<td>unable</td>
<td>sometimes clumsy</td>
<td>never impaired</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phrase length</td>
<td>1 word</td>
<td>4 words</td>
<td>7 words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>grammatical form</td>
<td>no syntactic word groupings</td>
<td>simplified/incomplete</td>
<td>normal range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>melodic line</td>
<td>word by word</td>
<td>limited to short phrases</td>
<td>normal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>paraphasias</td>
<td>present in every utterance</td>
<td>1-2 instances per minute</td>
<td>absent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>word finding</td>
<td>fluent but empty</td>
<td>information prop to fluency</td>
<td>primarily cont words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sentence repetition</td>
<td>0-20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70-80</td>
<td>90-100</td>
</tr>
<tr>
<td>auditory comprehension</td>
<td>0-20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70-80</td>
<td>90-100</td>
</tr>
</tbody>
</table>

Conduction Aphasia
C’est la cuisine….uh c’est la cuisine….. uh..l’évier uh qui avec l’eau ok…l’eau, teau puis elle l’a…l’an….le l’a l’anche..l’anche..ok..elle essuie les fisisse essuie les siesse avec ok……avec….puis…uh…oui…ok….ok….ok……non ok….non il y a d’autre chose…uh.. il y a d’autre chose la..il y a l’eau qui le vayeau, qui le plancher bon ok c’est le garf, le garf et la feuille, la fillette, puis la elle est, elle tambor, le tam, le tambourin, le tambourin le tambourin va va banche, va bancher en tout cas…..c’est effrayant!….c’est effrayant! Oui le garçon, ben la, lui aussi il veut il veut ga gatter gatter les gâteaux… uh….. puis c’est ça.
Abricot
Escalier
Champignon
Hélicoptère
Hippopotame
Tchécoslovaquie
Réfrigérateur
Vous savez bien
Il tombe par terre
Les clés sont jetées
Je vais au travail
Ne lui dites pas
Fluent aphasias

- Anomic aphasia
  - Comprehension: good
  - Expression:
    - Word finding problems
    - Empty
    - Few substantives
    - Circumlocutions
  - Repetition: good
  - Awareness of deficits
<table>
<thead>
<tr>
<th>Artic Agility</th>
<th>Phrase Length</th>
<th>Grammatical Form</th>
<th>Melodic Line</th>
<th>Paraphasias</th>
<th>Word Finding</th>
<th>Sentence Repetition</th>
<th>Auditory Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable</td>
<td>1 word</td>
<td>No syntactic word groupings</td>
<td>Word by word</td>
<td>Present in every utterance</td>
<td>Fluent but empty</td>
<td>0-20</td>
<td>0-20</td>
</tr>
<tr>
<td>Sometimes Clumsy</td>
<td>4 words</td>
<td>Simplified/incomplete</td>
<td>Limited to short phrases</td>
<td>1-2 instances per minute</td>
<td>Information proportional to fluency</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Never Impaired</td>
<td>7 words</td>
<td>Normal range</td>
<td>Normal</td>
<td>Absent</td>
<td>Primarily cont words</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>70-80</td>
<td>Normal range</td>
<td>Normal</td>
<td>Absent</td>
<td>Primarily cont words</td>
<td>90-100</td>
<td>90-100</td>
</tr>
</tbody>
</table>

Anomic Aphasia
Transcript: Anomic Aphasia

“I had an operation on my head.” May say: “I had one of them up there.” or “I had one of them where my hair is.”
Fluent aphasias

- Transcortical Sensory
  - Lesion in the watershed area of junction PCA and MCA territory of the hemisphere
  - Spares Wernicke’s area but isolates it from rest of brain
  - Resemble severe Wernicke’s aphasia but with preserved repetition
  - Repetition characterized by echolalia – repeats without understanding
Mixed transcortical aphasia

- Some consider fluent; some non-fluent
- Similar to global but repetition better
- Multiple lesions in anterior and posterior border zones
Subcortical aphasias

- May cause language disturbances because alter the physiology of the overlying cortex and not due to subcortical structures per se
- Researchers divide into thalamic and non-thalamic
Alexia with Agraphia

- Lesion = angular gyrus
- Surface and deep alexia/agraphia
- If speech affected = anomic aphasia
- May be accompanied by non-language parietal lobe signs (calculation, clock setting, finger id, r-l discrim)
Pure Alexia (pure word blindness; alexia without agraphia)

- Writes but cannot read (words, letters)
- Usually hemianoptic in the right visual field
- Two critical lesions
  - Lesion destroys visual cortex of left hemisphere and damages splenium of the corpus callosum
  - Wernicke’s area is intact but isolated from visual input from both hemispheres
Pure Agraphia

- Severe disorder of writing with little or no involvement of reading
- Damage to the left angular gyrus
Limitations of Classical Explanations of Aphasia

- Damage confined to Broca’s Area or Wernicke’s area does not produce chronic aphasia
- Aphasia from damage deep in the brain
- Syndromes better for groups than individuals
- Center for reading the AG?
- At best only 50% can be classified
Boston Classification

 Syndromes =
  - Regularly recurring patterns to lesions of given sites

 Variants =
  - Natural lesions vary in precise location/extent
  - No response is invariant across individuals
Contemporary Theoretical Orientations

- Cognitive Neuropsychology
  - Model normal cognitive processing
  - Analyze performance of brain damaged against normal model
  - Less concerned with localization
  - Error analysis
  - Single case studies
Figure 25-1. Schematic representation of the component representations and processes for single-word reading and writing. The solid lines depict lexical-semantic routes and the dashed lines indicate sublexical routes.
Differential Diagnosis

Motor Speech Disorders:

- Dysarthrias
  - Weakness/paralysis, incoordination, rigidity, involuntary movement
  - Consistent errors

- Apraxia of Speech
  - Motor planning problem
  - Absence of weakness etc
  - Initiation, groping, revisions, inconsistent
Case Example

- He said I'd never bake again
Apraxia of Speech
Language of Confusion

- Not a primary disorder of language
- Irrelevant, confabulated content
- Not usually focal brain damage
- In confusion, language is better than the ability to communicate
- In aphasia, language is worse than the ability to communicate
Differential Diagnosis

Cognitive-Communication Disorders:

- Right Hemisphere Deficits

“He can talk but he’s not the same person”
Communication Deficits: Right Hemisphere Damage

Linguistic deficits: social communication
- Literal, fail to use facial expression, context, problems with humor, sarcasm, expressions, implied meanings
- Ramble, gist communication (verbose, tangential), socially inappropriate

Non-linguistic cognitive deficits
- attention
- visual-perceptual processing
- affect/prosody
- neglect, anosognosia
Well, this is a scene in a house. It looks like a fine spring day. The window is open. I guess it's not Minnesota, or the flies and mosquitoes would be coming in. Outside I see a tree and another window. Looks like the neighbors have their windows closed. There's a woman near the window wearing what appears to be an inexpensive pair of shoes. She's holding something that looks like a plate. On the counter there, there's a hat and two caps that look like they would fit on a child's head. The woman is looking out the window, and the water's on, and it's running on the floor. Looks like she needs to call the plumber. (Clinician: “Is there anything over here?” Points to left side of picture.) Well, I see two people... children... a boy and a girl. The boy is getting cookies from the cupboard and the girl is laughing and waving. There's also a stool. Perhaps the boy is stealing cookies and perhaps the girl... or the stool is going to fall. There's a window beside the cookie jar, but it doesn't have any curtains.

Figure 8.4 — A right-hemisphere-damaged patient's description of the “cookie theft” picture from the Boston Diagnostic Aphasia Examination. (From Goodglass, H., Kaplan, E., & Barresi, B. [2001]. The assessment of aphasia and related disorders [3rd ed.]. Philadelphia: Lippincott Williams & Wilkins.)
Bedside Record Form

Spontaneous Speech: Content
Directions: Ask the patient these questions and encourage complete responses. Score length and complexity of sentences, word-finding difficulty, and paraphasias.

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How are you today? (1 point = any meaningful response)</td>
<td>(1)</td>
</tr>
<tr>
<td>2. What is your full address? (2 points = complete address; 1 point = street or city only)</td>
<td>(2)</td>
</tr>
<tr>
<td>3. Why are you here? (2 points = complete response; 1 point = incomplete response)</td>
<td>(3)</td>
</tr>
<tr>
<td>4. Show the patient a magazine picture of some complexity. Say: Tell me what is happening in this picture. (5 points = complete description; 4 points = incomplete description; 3 points = essential items; 2 points = few items only; 1 point = some relevant words; 0 points = no meaningful response)</td>
<td>(5)</td>
</tr>
</tbody>
</table>

Content Score (10)

Spontaneous Speech: Fluency
Directions: Circle the point value that represents the statement that best describes the patient's speech fluency.

10 = Normal speech
9 = Some hesitations and word-finding difficulty
8 = Circumlocutory, fluent speech with semantic paraphasias and word-finding difficulty
7 = Fluorophonic, jargon, stutters, or English syntax and phonology
6 = Logopenic but not normal syntax, few if any paraphasias, significant word-finding difficulty
5 = Halting, paraphasic, but more complete sentences; significant word-finding difficulty
4 = Apneustic, effortful, verbally shallow, but only one or two propositional sentences
3 = Mostly unintelligible, low-volume mumbled single words
2 = Single words, often paraphasic, effortful and hesitant
1 = Recurrent, stereotypic, stammers with meaningful inaudible
0 = No words or short, meaningless utterances

Fluency Score (10)

Auditory Verbal Comprehension: Yes/No Questions
Directions: Say: I'm going to ask you some questions. Answer yes or no. Patients may respond verbally or gesturally.

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is your name Smith?</td>
<td>1</td>
<td>6. Is the door closed?</td>
<td>1</td>
</tr>
<tr>
<td>2. Is your name Brown?</td>
<td>1</td>
<td>7. Will paper burn in fire?</td>
<td>1</td>
</tr>
<tr>
<td>3. Is your name? (Say the patient's last name)</td>
<td>1</td>
<td>8. Does March come before June?</td>
<td>1</td>
</tr>
<tr>
<td>4. Are the lights on in this room?</td>
<td>1</td>
<td>9. Do you eat a banana before you peel it?</td>
<td>1</td>
</tr>
<tr>
<td>5. Are you a doctor?</td>
<td>1</td>
<td>10. Is a horse larger than a dog?</td>
<td>1</td>
</tr>
</tbody>
</table>

Auditory Verbal Comprehension Score (10)

Sequential Commands
Materials: Coin, piece of paper, pen
Directions: Place a coin, a piece of paper, and a pen in front of the patient. Say: See the coin, the paper, and the pen. I will ask you to point to them and do things with them. Are you ready? Read each item.

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Point to the coin and the pen.</td>
<td>(2)</td>
</tr>
<tr>
<td>2. Point with the pen to the paper</td>
<td>(2)</td>
</tr>
<tr>
<td>3. Point to the pen with the paper</td>
<td>(2)</td>
</tr>
<tr>
<td>4. Put the pen on the paper and turn over the cards</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Sequential Commands Score (10)

Repetition
Directions: Ask the patient to repeat the words listed below. Say: Repeat these words, say... Subtract 1/2 point for each phonemic paraphasia or word order error.

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bed</td>
<td>(1)</td>
</tr>
<tr>
<td>2. Window</td>
<td>(1)</td>
</tr>
<tr>
<td>3. Forty-five</td>
<td>(1)</td>
</tr>
<tr>
<td>4. The telephone is ringing.</td>
<td>(2)</td>
</tr>
<tr>
<td>5. No ifs, ands, or buts.</td>
<td>(2)</td>
</tr>
<tr>
<td>6. The quick brown fox jumps over the lazy dog.</td>
<td>(2)</td>
</tr>
</tbody>
</table>

Repetition Score (10)
Object Naming

Directions: Ask the patient to name objects in the room. Say, “What is this?” or “What is the name of this object?”

Score 1-2 points each correct response.

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>bed</td>
<td>11</td>
</tr>
<tr>
<td>telephone</td>
<td>12</td>
</tr>
<tr>
<td>pillow</td>
<td>13</td>
</tr>
<tr>
<td>color of an article of clothing</td>
<td>14</td>
</tr>
<tr>
<td>elbow</td>
<td>15</td>
</tr>
<tr>
<td>door</td>
<td>16</td>
</tr>
<tr>
<td>magazine/calendar</td>
<td>17</td>
</tr>
<tr>
<td>shoulder</td>
<td>18</td>
</tr>
<tr>
<td>glass/cup</td>
<td>19</td>
</tr>
<tr>
<td>key</td>
<td>20</td>
</tr>
</tbody>
</table>

Object Naming Score (10)

Bedside Aphasia Score

Sum the Current Fluency, Auditory Verbal Comprehension, Sequential Commands, Repetition, and Object Naming scores. Divide the sum by 6; then multiply by 10 to obtain the Bedside Aphasia Score.

Reading

Directions: Ask the patient to read a paragraph aloud from a magazine. Score up to 5 points for fluent, correct sentences. Deduct 1 point for each significant error or omission. Determine level of reading comprehension by asking questions. Score up to 5 additional points for reading comprehension.

Reading Score (10)

Writing

Directions: Place a piece of paper and a pen on the table and say:

1. Write your name.
2. Write your address.
3. Write, “The telephone is ringing.”
4. Picture description: Ask the patient to write about a picture of some complexity from a magazine. Say, “Write about what is happening in the picture.

Writing Score (10)

Apraxia (Optional)

Directions: Say, “I’m going to ask you to do some things. Try to do them as well as you can.”

1. Wave goodbye.
2. Close your eyes.
3. Pretend to blow out a match.
4. Pretend to use a toothbrush.
5. Pretend to knock at a door and open it.

Apraxia Score (10)

Bedside Language Score

Sum the Current Fluency, Auditory Verbal Comprehension, Sequential Commands, Repetition, Object Naming, Reading, and Writing scores. Divide the sum by 8; then multiply by 10 to obtain the Bedside Language Score.

Bedside Aphasia Classification Criteria

Directions: To determine the patient’s Bedside Aphasia Classification, compare the patient’s Fluency, Auditory Verbal Comprehension, and Repetition scores to the three scores associated with each aphasia type.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>artic agility</td>
<td>unable</td>
<td>sometimes clumsy</td>
<td>never impaired</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>phrase length</td>
<td>1 word</td>
<td>4 words</td>
<td>7 words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>grammatical form</td>
<td>no syntactic word groupings</td>
<td>simplified/incomplete</td>
<td>normal range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>melodic line</td>
<td>word by word</td>
<td>limited to short phrases</td>
<td>normal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>paraphasias</td>
<td>present in every utterance</td>
<td>1-2 instances per minute</td>
<td>absent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>word finding</td>
<td>fluent but empty</td>
<td>information prop to fluency</td>
<td>primarily cont words</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sentence repetition</td>
<td>0-20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70-80</td>
<td>90-100</td>
</tr>
<tr>
<td>auditory comprehension</td>
<td>0-20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70-80</td>
<td>90-100</td>
</tr>
</tbody>
</table>

Broca’s Aphasia Rating Scale Profile of Speech Characteristics Boston Diagnostic Aphasia Examination
II. AUDITORY COMPREHENSION

A. **Word Comprehension**

1. Basic word discrimination instruct the patient to point to the picture (color, letter, or number) corresponding to the spoken test word. Score 1 point per item if the response is correct within 3 seconds and 1/2 point if the response is correct in more than 3 seconds.

<table>
<thead>
<tr>
<th>Enter Erroneous Responses</th>
<th>&lt;3&quot; (1 point)</th>
<th>&gt;3&quot; (1/2 point)</th>
<th>Fail (0)</th>
</tr>
</thead>
</table>

For Body Parts Say: “Show me your . . . ”

1. Shoulder
2. Cheek
3. Candle
4. Bear
5. Peanut
6. Shirt
7. Bus
8. Saw
9. Ant
10. Tulip

(Colours)
11. Blue
12. Brown

(Letters)
13. T
14. N

(Numbers)
15. 4
16. 13

Score: ______/15

B. **Commands**

Have the patient carry out the following commands, giving one point of credit for each underlined element that he or she carries out. One repetition is permitted on request, but the whole command must be repeated.

1. Point to the ceiling, then to the floor.
   (After lining up a pencil, watch, and card, in that order, on the table in front of the patient, say . . . )

2. Put the pencil on top of the card, then put it back.

3. Tap each shoulder twice with two fingers, keeping your eyes shut.
C. Complex Ideational Material

There are 6 pairs of questions, each pair consisting of a yes-item and a no-item. Both the a and the b questions must be correct to gain 1 point of credit for each numbered pair. Note that odd and even numbered items are intermingled, to avoid having a predictable alternation of yes and no responses. Questions 3 through 6 are based on short paragraphs, to be read to the patient.

1a. Will a cork sink in water?
    2a. Can you use a hammer to pound nails?

1b. Will a stone sink in water?
    2b. Is a hammer good for cutting wood?

"I AM GONNA READ YOU A SHORT STORY AND THEN I WILL ASK YOU SOME QUESTIONS ABOUT IT. ARE YOU READY?" (Read at a normal rate).

Mr. Jones had to go to New York. He decided to take a train. His wife drove him to the station, but on the way they had a flat tire. However, they arrived at the station just in time for him to catch the train.

3a. Did Mr. Jones miss his train?
    4a. Was Mr. Jones going to New York?

3b. Did he get to the station on time?
    4b. Was he on his way home from New York?

"I WILL READ YOU ANOTHER ONE. READY?"

A customer walked into a hotel carrying a coil of rope in one hand and a suitcase in the other. The hotel clerk asked, "Pardon me, sir, but will you tell me what the rope is for?" "Yes," replied the man, "That's my fire escape." "I'm sorry, sir," said the clerk, "but all guests carrying their own fire escapes must pay in advance."

5a. Was the customer carrying a suitcase in each hand?
    6a. Was the clerk suspicious of this guest?

5b. Was the customer carrying something unusual in one hand?
    6b. Did the clerk trust this guest?

Score: ___ /6
B. Repetition

1. Single words
   - Have the patient repeat each of the following words. A single repetition by
     the examiner may be given if requested. For credit, the word must be
     intelligible. Mark a check mark if there is articulation impairment.

<table>
<thead>
<tr>
<th>Response</th>
<th>Articulation Impairment</th>
<th>Error Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. What</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Emphasize</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Methodist Episcopal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Score: ____/5

2. Repetition of sentences
   - The entire sentence is repeated for repetition. Check (✓) each correct word,
     cross out omissions, transcribe erroneous productions in the space provided
     and check if there is articulation impairment. Tally error types in the error
     code column using the Error Codes provided on page 7. An item is correct if
     all words and no extraneous words are given.

<table>
<thead>
<tr>
<th>Target Sentence</th>
<th>Response</th>
<th>Articulation Impairment</th>
<th>Error Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Father comes home.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. He picks up the paper from the coffee table.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Score: ____/2
block  
watch  

time  
clock

bib  
sleep  

bed  
nap

wait  
pounds  

weight  
eight

telescope  
binocular  

ocular  
binnacle
1. A dog can ______.
   talk  bark  sing  cat

2. Mr. Jones gives haircuts and shampoos. He is a ______.
   shaving  boy  butcher  barber

3. Schools and roads cost money. We all pay for them through ______.
   houses  country  taxes  police

4. Aluminum was once very costly to refine. Now electricity has solved the refining problem, and aluminum has become ______.
   very strong  a miner  electronic  much cheaper
V. WRITING

A. Mechanics of Writing

Instruct the patient to perform the seven numbered writing tasks listed below on the next two pages of this booklet. Enter the numerical scoring code in each column on the row corresponding to its item. Note: In scoring "well-formedness," disregard the correctness of letter or number produced.

<table>
<thead>
<tr>
<th>Well-formedness of letters</th>
<th>Correctness of letter choice</th>
<th>Motor facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - all well formed</td>
<td>3 - no error</td>
<td>2 - not impaired</td>
</tr>
<tr>
<td>1 - partly</td>
<td>2 - &gt; half</td>
<td>1 - laborious</td>
</tr>
<tr>
<td>malformed</td>
<td>1 - &lt; half</td>
<td>0 - failure of motor control</td>
</tr>
<tr>
<td>0 - illegible</td>
<td>0 - &lt; 2 correct</td>
<td></td>
</tr>
</tbody>
</table>

1. Signature (cursive) ___________
2. Printed Name ___________
3. Dictated letters T.G.R.S.B. ___________
4. Copy "QUICK BROWN FOX" (see page 14 of this booklet) Cursive ___________
5. Printed copy of sentence ___________
6. Numbers 1–10 ___________
7. Dictated numbers 2-12-9-11-6 ___________

Total Score: ___________/14 ___________/21 ___________/14

B. Basic Encoding Skills—Dictated Words

Two pages are provided in this booklet for the patient's written performance. Alternatively, the examiner may prefer to use loose sheets of white paper. All performance is to be scored in this booklet.

1. Primer word vocabulary
   1. ___ cat 3. ___ go
   2. ___ run 4. ___ dog
   Score ___/4

2. Regular phonics
   1. ___ flag
   2. ___ apartment
   Score ___/2

3. Common irregular forms
   1. ___ nation
   2. ___ knife
   3. ___ cough
   Score: ___/3
Getting Your Message Across
Adapted from: Simmons-Mackie, 2001; Brookshire, 1993; The Aphasia Institute (http://www.aphasia.ca/training/tips.html)

Modify Your Speech:
- One idea at a time
- Pause between ideas
- Simple sentences
- Main ideas
- State your point directly
- Use tone of voice/emphasis to highlight key points
- Use alerting strategies (person’s name, touch)
- Key information at end
- Signal new topic (“Let’s talk about….”)
- Signal end of topic (“That’s the end of that”)
- Be redundant (“Mary, your sister”)
Getting your message across

- Repeat, rephrase, verify, summarize
- Avoid pronouns (Jim vs. he)

**Supplement Speech:**
- Gestures/pantomime/facial expression
- Write down key words, draw as you talk
- Use pictures, magazines, photos as props
- Make use of the surroundings (talk about a picture/photo in the room)
To Help the Aphasic Person Get Messages Across

- Encourage writing or drawing
- Encourage pointing
- Identify general topic first, then details
- Ask yes/no questions
- Use a written yes/no
- If you don’t have time, say when you will return
- Encourage the person to use your written words
Questions about aphasia

- An aphasic patient who can’t answer questions about person, place and time is disoriented.
- An aphasic patient who is having difficulty speaking has an expressive aphasia.
- If an aphasic patient does not respond to a question or follow instructions, it is because he/she does not understand.
- An aphasic patient who laughs and smiles at the right time during a conversation understands everything.
- An aphasic patient should be able to benefit from an alphabet or picture board.
Questions/Comments?