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The BCAT® Test System Training

Presented by:
Dr. William Mansbach
Creator of the *BCAT Approach*

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Why does cognitive assessment matter?

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Prevalence of Cognitive Impairment

- 75-80% of older adults in nursing and assisted living facilities have some form of cognitive impairment
- Approximately 25-30% have Mild Cognitive Impairment (MCI)
- Approximately 50-60% have dementia
- In the community, 15-20% have MCI
- In the community, approximately 11% of older adults have dementia

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Common Negative Outcomes of Cognitive Misdiagnosis

- Sub-optimal management of medical conditions
- Inflated rate of hospital readmissions
- Increased frequency of falls
- Lowered rehabilitation services outcomes
- Sub-optimal discharge planning
- Increased risk for losing independence

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The Cognitive Continuum

- Cognition is a "vital sign"
- Cognition is at the center of our experience
- Cognition consists of multiple domains
- The three major cognitive functioning stages:
  - ✓ Normal
  - ✓ Mild cognitive impairment
  - ✓ Dementia

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The Three Cognitive Stages

- **Normal**: Inefficiencies, but not pathology
- **MCI**: The four subtypes
  - –Amnestic (aMCI)
  - –Executive (eMCI)
  - –Multi-domain (mMCI)
  - –Undifferentiated (uMCI)
- MCI conversions to dementia

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The Three Cognitive Stages (continued)

Dementia—a matter of degree

- ALWAYS progressive
- Affects cognition, mood, behavior, and function
- Multiple causes

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Neuro-physiology

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Basic Brain Structures

- Neocortex (cortex)—executive or "higher cortical functions"
- Limbic system—"emotional brain" and "memory starter"
- Cerebellum—motor control
- Brain stem—basic involuntary functions (breathing, heart rate, and blood pressure)

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Basic Brain Structures: Neocortex

Frontal Lobes
Executive Processes

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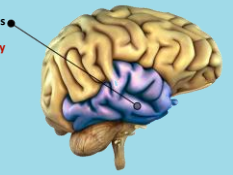
Basic Brain Structures: Neocortex

Temporal Lobes
Learning & Memory



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Basic Brain Structures: Limbic System

Hippocampus
Early Memory Stage

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The BCAT® Test System

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Background on Cognition & Assessment

Problems with Existing Cognitive Instruments:

- Sensitivity and specificity
- Not predictive of *function*
- Relatively weak on assessing memory
- Relatively weak on assessing executive functions

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Commonly Used Cognitive Screening Tools

- Mini-Mental State Examination (MMSE)
- Short Test of Mental Status (STMS)
- Montreal Cognitive Assessment (MoCA)
- Saint Louis University Mental Status Examination (SLUMS)
- Brief Cognitive Assessment Tool (BCAT®) & BCAT®-SF
- Brief Interview for Mental Status (BIMS)

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The BCAT® Test System

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The BCAT® Test System – The Six Tests

- The Test System is a comprehensive approach for rapid assessment of memory, executive functions, and attentional capacity.
- The “Full” BCAT® (21-items) is the featured test.
- The other four tests make unique contributions to assessment.
- We recommend administering the BCAT® and BADS® first.
- The System is an excellent method for tracking cognitive and mood changes over time.

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The BCAT® Test System – The Six Tests

- All tests have interactive online scoring programs with test reports.
- All six tests have undergone rigorous testing, peer-reviews.
- Multiple publications, professional presentations
- The BCAT® Test System is supported by the BCAT® Research Center.

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The BCAT®

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The Brief Cognitive Assessment Tool (BCAT®)

- Several development and validation studies
- 21 items
- 50 possible points
- 10-15 minutes to administer

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The Brief Cognitive Assessment Tool (BCAT®)

- Memory and Executive Functions Factors
- Full, Memory Factor, Executive Functions Factor scores
- Predicts: ADL, IADL, "falls," residential placement, "person-centered" ability to participate in care decisions
- Interactive website scoring program with test report

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BCAT® Item Detail

ORIENTATION ____ / 6

☐ Year ☐ Month ☐ Day/Week ☐ State ☐ City ☐ Situation

IMMEDIATE VERBAL RECALL ____ / 4

		BANANA	JUSTICE	SARA	BRIDGE
(Instructions: Score Only 1st Trial)	1st Trial	☐	☐	☐	☐
	2nd Trial	☐	☐	☐	☐

VISUAL RECOGNITION/NAMING ____ / 3

☐ ☐ ☐

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BCAT® Item Detail

ATTENTION

Letter List: *(Instructions: Read Letters, Instructing Patient to Tap with Hand at Each Letter C; No Errors=1 Point, Error=0 Points)* ____ / 1

C F B T O L C C Q A Z C B R B Q W D C S B L R B C B Z X C B

Mental Control: *(Instructions: Count Backward from 20-1)* ____ / 1

(Instructions: Recite Days of the Week Backward from Sunday) ____ / 1

Digits: **FORWARD** 2 5 9 7 4 5 1 7 8 9 6 ____ / 2

BACKWARD 6 2 7 4 1 8 9 ____ / 2

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BCAT® Item Detail

ABSTRACTION ____ / 3

(Instructions: Find the Similarities) ☐ Apple - Orange ☐ Train - Boat ☐ Book - Newspaper

LANGUAGE

Repeat: *(Instructions: No Errors=1 Point, Error=0 Points)* ____ / 1

"Michael married Marie's mother."

Fluency: *(Instructions: Girl Names/60 Seconds; X ≥ 15 = 2 points, X = 8-14 = 1 point, X ≤ 7 = 0 points)* ____ / 2

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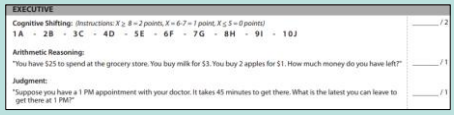
BCAT® Item Detail



EXECUTIVE

Cognitive Shifting: *(Instructions: X ≥ 8 = 2 points, X = 6-7 = 1 point, X ≤ 5 = 0 points)* _____ / 2

1A - 2B - 3C - 4D - 5E - 6F - 7G - 8H - 9I - 10J

Arithmetic Reasoning:

"You have $25 to spend at the grocery store. You buy milk for $3. You buy 2 apples for $1. How much money do you have left?" _____ / 1

Judgment:

"Suppose you have a 1 PM appointment with your doctor. It takes 45 minutes to get there. What is the latest you can leave to get there at 1 PM?" _____ / 1

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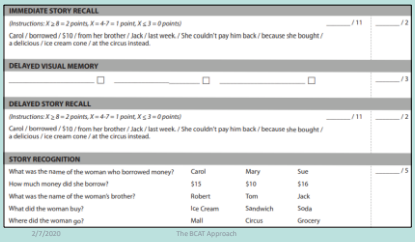
BCAT® Item Detail



IMMEDIATE STORY RECALL

(Instructions: X ≥ 8 = 2 points, X = 4-7 = 1 point, X ≤ 3 = 0 points) _____ / 11 _____ / 2

Carol / borrowed / $10 / from her brother / Jack / last week. / She couldn't pay him back / because she bought / a delicious / ice cream cone / at the circus instead.

DELAYED VISUAL MEMORY

_____ ☐ _____ ☐ _____ ☐ _____ / 3

DELAYED STORY RECALL

(Instructions: X ≥ 8 = 2 points, X = 4-7 = 1 point, X ≤ 3 = 0 points) _____ / 11 _____ / 2

Carol / borrowed / $10 / from her brother / Jack / last week. / She couldn't pay him back / because she bought / a delicious / ice cream cone / at the circus instead.

STORY RECOGNITION

What was the name of the woman who borrowed money?	Carol	Mary	Sue	_____ / 5
How much money did she borrow?	$15	$10	$16	
What was the name of the woman's brother?	Robert	Tom	Jack	
What did the woman buy?	Ice Cream	Sandwich	Soda	
Where did the woman go?	Mall	Circus	Grocery	

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The BCAT® Short Form (BCAT®-SF)

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The BCAT® Short Form (BCAT®-SF)

What is it?

- Abbreviated version of the full BCAT®
- Can be administered in about three (3) minutes
- Pulls from the three full BCAT® clusters
  - Attention
  - Contextual Memory
  - Executive Functions

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The BCAT® Short Form (BCAT®-SF)

What is it?

- Has six items
- 21 points
- Can be scored online
- Has a test report
- "Cut" score differentiating dementia, MCI (without subtypes), and normal

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The BCAT® Short Form (BCAT®-SF)

When to use it?

- When time is very short
- When the patient can't tolerate more than a few minutes
- A quick assessment once a full BCAT® baseline has been established
- Often used in primary care offices

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The BCAT® Short Form (BCAT®-SF)—Item Detail

ORIENTATION

☐ Year ☐ Month ☐ Day/Week ☐ State ☐ City ☐ Situation _____ / 6

IMMEDIATE VERBAL RECALL

☐ BANANA ☐ JUSTICE ☐ SARA ☐ BRIDGE _____ / 4

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The BCAT® Short Form (BCAT®-SF)—Item Detail

IMMEDIATE STORY RECALL

(Instructions: X ≥ 8 = 2 points, X = 4-7 = 1 point, X ≤ 3 = 0 points) _____ / 11 _____ / 2

Carol / borrowed / $10 / from her brother / Jack / last week. / She couldn't pay him back / because she bought / a delicious / ice cream cone / at the circus instead.

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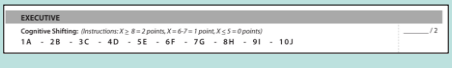
The BCAT® Short Form (BCAT®-SF)—Item Detail


EXECUTIVE

Cognitive Shifting: *(Instructions: X ≥ 8 = 2 points, X = 6-7 = 1 point, X ≤ 5 = 0 points)* _____ / 2

1 A - 2 B - 3 C - 4 D - 5 E - 6 F - 7 G - 8 H - 9 I - 10 J

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The BCAT® Short Form (BCAT®-SF)—Item Detail

DELAYED STORY RECALL		
(Instructions: X ≥ 8 = 2 points, X = 4-7 = 1 point, X ≤ 3 = 0 points)	_____ / 11	_____ / 2
Carol / borrowed / $10 / from her brother / Jack / last week. / She couldn't pay him back / because she bought / a delicious / ice cream cone / at the circus instead.		

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The BCAT® Short Form (BCAT®-SF)—Item Detail

STORY RECOGNITION				
What was the name of the woman who borrowed money?	Carol	Mary	Sue	_____ / 5
How much money did she borrow?	$15	$10	$16	
What was the name of the woman's brother?	Robert	Tom	Jack	
What did the woman buy?	Ice Cream	Sandwich	Soda	
Where did the woman go?	Mall	Circus	Grocery	

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The Kitchen Picture Test of Judgment (KPT®)

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The Kitchen Picture Test (KPT®) of Judgment

The KPT® was developed because:

- there were too few tools for older adults.
- many of these instruments have poor psychometrics.
- most of these measures are designed for a limited number of clinicians.
- existing tools are too cumbersome to use efficiently.

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The Kitchen Picture Test (KPT®) of Judgment

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The Kitchen Picture Test (KPT®) of Judgment

- Can be administered in less than five minutes
- Appropriate for trained professionals and techs
- Based on visual stimuli to put the patient “into the situation”
- Strong psychometrics
- “Cut” scores: judgment consistent with dementia versus non-dementia

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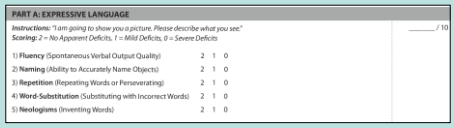
The Kitchen Picture Test (KPT®) – Item Detail



PART A: EXPRESSIVE LANGUAGE _____ / 10

Instructions: *"I am going to show you a picture. Please describe what you see."*
Scoring: *2 = No Apparent Deficits, 1 = Mild Deficits, 0 = Severe Deficits*

1) **Fluency** (Spontaneous Verbal Output Quality)	2 1 0
2) **Naming** (Ability to Accurately Name Objects)	2 1 0
3) **Repetition** (Repeating Words or Perseverating)	2 1 0
4) **Word-Substitution** (Substituting with Incorrect Words)	2 1 0
5) **Neologisms** (Inventing Words)	2 1 0

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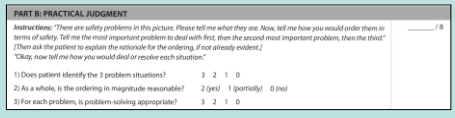
The Kitchen Picture Test (KPT®) – Item Detail



PART B: PRACTICAL JUDGMENT _____ / 8

Instructions: *"There are safety problems in this picture. Please tell me what they are. Now, tell me how you would order them in terms of safety. Tell me the most important problem to deal with first, then the second most important problem, then the third."*
[Then ask the patient to explain the rationale for the ordering, if not already evident.]
"Okay, now tell me how you would deal or resolve each situation."

1) Does patient identify the 3 problem situations?	3 2 1 0
2) As a whole, is the ordering in magnitude reasonable?	*2 (yes) 1 (partially) 0 (no)*
3) For each problem, is problem-solving appropriate?	3 2 1 0

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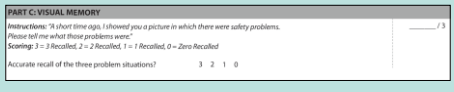
The Kitchen Picture Test (KPT®) – Item Detail



PART C: VISUAL MEMORY _____ / 3

Instructions: *"A short time ago, I showed you a picture in which there were safety problems. Please tell me what those problems were."*
Scoring: *3 = 3 Recalled, 2 = 2 Recalled, 1 = 1 Recalled, 0 = Zero Recalled*

Accurate recall of the three problem situations? 3 2 1 0

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The Brief Anxiety and Depression Scale (BADS®)

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The Brief Anxiety and Depression Scale (BADS®)

- Can be administered in less than three (3) minutes
- Can be used as a "process" instrument over time
- Has a "cut" score to differentiate those with and without anxiety symptoms
- Has a "cut" score to differentiate those with and without depressive symptoms
- Has strong reliability, construct validity, and predictive validity

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The Brief Anxiety and Depression Scale (BADS®)

- Comprised of eight items
- Has strong sensitivity and specificity ("cut" scores)
- Assesses for symptoms of Generalized Anxiety Disorder
- Combines depressive symptoms and diagnosis of major depressive episode
- Score range from 0 – 16
- Is appropriate for all trained professionals and techs

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The Brief Anxiety and Depression Scale (BADS®)

Scoring and Interpretation

- Enter the scores using the Online BADS® Test
- The test report identifies those who are likely to have a Generalized Anxiety Disorder.
- The test report identifies those who are likely to have significant depressive symptoms or an actual depressive episode.

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The Brief Anxiety and Depression Scale (BADS®)

Scoring and Interpretation (continued)

- If "positive" screen, consider a referral for a more comprehensive evaluation.
- Consider the impact of anxiety and depression on cognition, function, and rehab outcomes.

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The BADS® – Item Detail

1. Do you find that you worry about things more than usual?	0 = No	1 = Somewhat	2 = Yes
2. Have you lost interest in activities you had found pleasurable?	0 = No	1 = Somewhat	2 = Yes
3. Do you feel pessimistic about your future?	0 = No	1 = Somewhat	2 = Yes
4. Do you feel like you have less energy than you used to?	0 = No	1 = Somewhat	2 = Yes

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The BADS® – Item Detail

5. Do you worry that something bad is going to happen?	0 = No	1 = Somewhat	2 = Yes
6. Do you have a feeling of being overwhelmed?	0 = No	1 = Somewhat	2 = Yes
7. Are you feeling nervous, anxious, or "wound up" much of the time?	0 = No	1 = Somewhat	2 = Yes
8. Do you have difficulty controlling or stopping excessive worry?	0 = No	1 = Somewhat	2 = Yes

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The Verbal Test of Practical Judgment (VPJ®)

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The Verbal Test of Practical Judgment (VPJ®)

The VPJ® was developed because:

- impaired judgment creates safety risks that negatively impact a person's ability to function independently.
- there is a shortage of ecologically valid measures to assess judgment.

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The Verbal Test of Practical Judgment (VPJ®)

The VPJ® was developed to:

- assess judgment and predict a person's ability to successfully manage basic activities of daily living (ADL) and instrumental activities of daily living (IADL)
- inform hospital and rehab staff in patient discharge planning.
- to help clinicians evaluate patient decision-making skills.
- detect possible judgment concerns in people who have more nuanced or inconspicuous cognitive deficits.

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The Verbal Test of Practical Judgment (VPJ®)

The VPJ® scores correspond to three judgment levels:

- No apparent judgment issues
- Some judgment issues
- Severe judgment issues

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The VPJ® – Item Detail

1. Suppose you have been taking a medication for a long time. What might happen if you suddenly stop taking it? 2 1 0

   2 = Serious negative consequences could arise. For example, I could become seriously ill or eventually die.
   1 = Minor negative consequences could arise. For example, I could feel sick.
   0 = Probably nothing would happen. I take too many medications anyway. Inaccurate or vague response.

2. Suppose you realize that you accidentally took too much of your medication. You took twice the prescribed dose. What should you do? 2 1 0

   2 = Call my doctor and ask advice. Contact the nurse and ask advice. Call Poison Control and ask advice.
   1 = Monitor my reactions and call for help if I get sick.
   0 = I wouldn't do anything. I would just wait. Inaccurate or vague response.

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The VPJ® – Item Detail

3. Suppose you fall in the bathroom and cannot get up. You're home alone. What should you do? 2 0

2 = Push my pendant. Crawl to the phone and call for help. Other appropriate and active response.

0 = Lay there and wait for help.

4. Suppose you plan to microwave a frozen dinner for your meal. When taking the dinner out of the freezer, you notice it is not frozen. What do you do about eating? 2 1 0

2 = A plan to eat something else AND awareness that eating the microwave dinner might make one sick. (key feature)

1 = An awareness of the possible health consequences of eating spoiled food, but NO reasonable plan to eat.

1 = A plan to eat something else, but NO recognition of the possible health consequences of eating spoiled food.

0 = I would eat it anyway. Lack of awareness that spoiled food can lead to being sick.

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The VPJ® – Item Detail

5. Suppose you have a 5 PM appointment with your doctor. It takes 35 minutes to get there. What is the latest you can leave to get there at 5 PM? 2 0

2 = 4:25

0 = Any other answer

6. Suppose you are waiting for a taxi to take you to an appointment with your doctor. The taxi is 15 minutes late. What should you do? 2 1 0

2 = I would call the doctor and say I am late. I would call the doctor and see if I can reschedule the appointment.

1 = I would call the taxi service to see what happened (w/o calling the doctor).

0 = I would wait for the taxi to come. An inaccurate or vague response.

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The VPJ® – Item Detail

7. Suppose you haven't bathed or showered in two weeks. Tell me what possible problems might be the result. 2 1 0

2 = At least two concrete examples or a stated association between hygiene and health.

1 = One concrete response (I could smell bad), without stating an association between hygiene and health.

0 = I don't think showering or bathing is all that important. Inaccurate or vague response.

8. Suppose you receive a check the beginning of every month that you use to meet your expenses. You have five days left in the month. The electric bill is due and you have a prescription to pick up. You can't afford to pay both. What should you do? 2 1 0

2 = I would pay for the prescription and call the electric company and see if I can send it in late. (Recognition that patient can't pay both, but Rx is more important).

1 = I would pay for the Rx and wait on the electric. (Understand that both can't be paid w/o a plan for both).

0 = I would wait for next month and pay them then. Inaccurate or vague response.

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The VPJ® – Item Detail

9. Suppose you buy a meal at a restaurant that costs $15. You hand the server $20, and she gives you $2 back. What should you do?	2	1 0
2 = Ask for the correct change. (Recognition of receiving an inaccurate change with an appropriate response). 1 = Consider the amount she owes me as the tip. 0 = I wouldn't do anything. Inaccurate or vague response.		
10. Suppose someone you do not know comes to your door to sell you a magazine subscription. He asks you if he can come into your home to tell you about great magazine discounts. What should you do?	2	1 0
2 = I wouldn't let him in the door. I'd ask him to leave written information and tell him that I'll call him if I am interested. 1 = I wouldn't answer the door. 0 = I would let him in and listen to his sales pitch. Inaccurate or vague response.		

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The Brief Cognitive Impairment Scale (BCIS®)

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The BCIS® for Severe Impairment

Brief Cognitive Impairment Scale (BCIS®) – Used for:

- BCAT® scores <25 (guideline)
- Assessing severe cognitive impairment
- Tracking cognitive changes over time
- Creating behavior plans
- Assists caregivers in providing personal care

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The BCIS® for Severe Impairment

Measures:

- Simple cognitive processing
- Complex cognitive processing
- Interpersonal tolerance

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The BCIS® for Severe Impairment

1. Does the patient make appropriate eye contact with the examiner ? *(minimal standard - initial contact with at least subsequent intermittent contact) - 1 point*	_____ / 1
Say: *"I'm going to put this pencil (or other small object) over here (out of patient's immediate visual field). I'll ask you later to remind me where I put it."*	
2. Say: *"Please tell me your name."* - *1 point*	_____ / 1
3. Say: *"Where are we now?" - simple answers like nursing home are scored as 1 point*	_____ / 1
4. Say: *"This is a piece of paper and this is a pencil (pen). Please draw a circle right here* (point to the spot on the paper).*" approximately round shape is scored as 1 point*	_____ / 1
5. 3-step command (simple): Say: *"Open your mouth, close your eyes, raise your hand."* (Give each command separately.) *2 points if all correct; 1 point if 1-2 correct*	_____ / 2

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The BCIS® for Severe Impairment

6. 3-step command (complex): Say: *"Raise your right hand, touch your nose, then make a fist."* (Give all 3 commands before patient begins the task.) - *2 points if all correct; 1 point if 1-2 correct*	_____ / 2
7. Say: *"Please count backwards from 10 to 1." - patient must complete full task for 1 point*	_____ / 1
8. Say: *"What would you do if you were very thirsty?" - 2 points for elaboration; 1 point for concrete response*	_____ / 2
9. Say: *"What would you do if someone took your shoes?" - 1 point for an appropriate answer*	_____ / 1
10. Say: *"When we first met today, I put my pencil (or other object) somewhere in this room. Where did I put it?" - 1 point*	_____ / 1
11. Was patient able to tolerate visit without becoming agitated? (without requiring "calming") - *1 point if affirmative*	_____ / 1

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The BCIS® for Severe Impairment

Scoring and Interpretation

- Enter the scores using the Online BCIS® Test
- Generates a test report
- Can be used repeatedly as a "process" tool
- Helpful in managing the milieu

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The BCAT® Approach Summary

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Advantages of Online Test Reports

- Reduce mathematical errors
- Can help with diagnostic accuracy
- Can help standardize clinical interpretations
- Can be integrated into an Electronic Health Record
- Are more portable

Online Test Reports should *enhance*, but not replace the clinical judgment.

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Improve Patient Cognitive Function

Now that you know how to use the BCAT® Test System, would you like to learn how to improve memory and cognition of your patients?

Check out the BCAT® education modules to learn more about The BCAT® Intervention programs including: The BCAT® Working Memory Exercise Books, the MemPics® book series, online BCAT® Brain Rehabilitation Modules, and the ENRICH® program.

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