Revised B4ECT ReCoDe – Instructions and Scoring (Not Yet Published and Peer Reviewed)

1. Auditory Verbal Learning and Memory

Instructions:

1. Say to the patient that "*I will be reading out some words one by one. Please listen to them carefully. After I finish, you have to tell as many of these words as you remember. You can say these words in any order.*"
2. Read out the 5 words from list A one at a time at the rate of one word per second.
3. When the patient is saying the words, do not give any cues. Mark the words under Trial 1 which are told correctly.
4. Say to the patient that "*I will repeat the same list two more times. Please note that repetition of the list is an essential step, and does not depend on whether you remember or not. Also, don't worry about what you remember every time.*" Repeat the list two times and mark the correct answers under Trials 2 and 3.
5. Say to the patient that "*I will be reading out the words from a different list. After I finish, you have to tell as many words as you remember from the newer list. You can say these words in any order*" Read words from list B now and record correct answers under Trial 4.
6. Then, ask the patient "*Now, recall words from the 1st list in any order.*" Mark the correct answers under the 'Immediate recall– IR (Trial 5) column.
7. Lastly, inform the patient "*Please remember the words from this (1st) list. I will ask you to recall them again after about 15- 20 min.*"
8. **Administer the tests related to 'Orientation' and 'Subjective Memory' requiring a total of 5- 10 min approximately**.
9. After completing the above tests, ask the patient "*You remember, I conducted the test of recalling some words. Now, please recall as many words as possible from the 1st list.*" Mark the correct answers from the List A under the 'Delayed recall– DR' column.
10. The lists are available currently in English, Hindi, Kannada, Telugu and Tamil

Scoring:

1. Telling each word correctly in any phase of the testing should be scored '1' and incorrect response should be scored '0'.
2. For memory, there are 2 scores:
    a. 'Immediate verbal recall' representing immediate verbal memory.
    b. 'Delayed verbal recall' representing recent verbal memory.
    c. Both are scored individually as number of words recalled correctly from the list A under Trials 5 and 6 respectively.
3. For learning, there can be 2 scores.
    a. Verbal Learning = Score of Trial 3 minus score of Trial 1.
    b. Verbal Learning total words = Sum of scores of Trials 1, 2 and 3.

2. Orientation

Instructions and Scoring:

1. The items are related to the different aspects of orientation and needs to be asked to the patient.
2. Inform the patient the questions are related to his whereabout in general and can be replied as per his/ her best understanding.
3. Give only one chance for replying each question.
4. Provide the options only if it is present in the question. Don't give any clues.
5. Score '1' if replied correctly or '0' otherwise. Sum up the correct answers to give the 'Total score'.
6. Date and month can be replied according to the regional calendar also.
7. For place, either the response 'hospital', hospital's name or the city's name should be considered correct. You may clarify the question if you think patient has not understood it.

3. Subjective Cognition

Instructions:

1. Both patient and the caregiver are interviewed and rated for this section.
2. Details of the caregiver in the questionnaire, who would rate the subjective memory of the patient:
    a. Make sure that this caregiver has spent reasonable time with the patient in recent times. This information has been entered under *"Currently staying with the patient for how long"*
    b. The caregiver should also have frequent contact with the patient prior to starting this course of ECT and have a fair understanding of the patient's pre-ECT cognitive capacity. This may be in the form of staying with the patient, frequent contacts over the phone, or frequent visits to the patient's residence. This information has to be entered under *"Before ECT, details of contact with the patient"*.
3. Make sure that caregiver is not there when you are asking the patient to rate his/ her subjective memory and the vice versa
4. You may interview first the caregiver or the patient as per the convenience.
5. Rating instructions and all items are similar for both patient and the caregiver.
6. To keep intact the subjective nature of this section, it's advisable that you don't challenge their rating. You also should not give examples or the timeline unless the patient/ caregiver did not understand the item at all and asks for an example. Some examples are illustrated below.

Tell following to the patient/ caregiver:
*"Now we are going to ask about **your/ your relative's or friend's current capacity** to remember and recall different aspects.*

<u>*Six Items:*</u>

"As compared to your/ his/ her usual (maximum) ability, how much is your/ his/ her"

Item 2: Ability to remember where you/he/she have/has kept the personal belongings/ objects?

> *Personal Belongings/objects: Spectacles, mobile, pen, keyring, purse/ wallet, money, documents, books/ files, kitchen related items, specific bottles/ containers (Need to be asked based on job profile and whether person is currently working or not)*

Item 4: Ability to recall the details of the events which happened in the last few days?

> *Events such as meals, incidences occurring in the ward (if admitted), activities performed such as watching some program/ listening song etc.*
> *Meeting: Doctors, Other health professional, relatives, friends, colleagues (In-person/ video/ telephone)*

<u>*Scoring:*</u>

1. For both pre-ECT and post-ECT assessments, record the current ability of the patient as compared to his/ her maximum ability in that domain. The report of this ability as perceived by the patient himself/ herself and his/ her caregiver.

2. For the 'subjective cognition score', follow the steps below
   a. Sum up the 'Ability Score' for all rated items and divide it by the total number of rated items to get the 'Subjective cognition' score
   b. Example: Item 1 score= 60, Item 2 score = 70, Item 3= 70, Item 5= 50. Other two items were not rated as the caregiver is not aware of them.
   Subjective Cognition Score = $\dfrac{60 + 70 + 70 + 50}{4}$
   $$= 250/4$$
   $$= 62.5$$
3. 'Subjective Cognition score' of the caregiver and patient should be entered separately

4. Visual Retention

<u>*Instructions:*</u>
1. Place four objects of daily use *(use from the list given below)* in front of the patient at four different specific locations *(use from the list given below).* Say the name of the object and its location while placing it. For example, "*I am keeping the 'comb' in the 'drawer'.*
2. After all the four objects have been placed, ask the patient to rehearse the objects and their locations.
3. If the patient does one or more mistakes in recalling, repeat the whole process showing the four objects at their respective locations. Following this, ask the patient to rehearse again. In case of doing mistakes again, you can repeat once more the process of rehearsal making it a maximum of 3 attempts.
4. If the patient has all correct responses in the 1st attempt, no need to repeat the attempt.
5. Put the score '1' and '0' in the respective cell based on the scoring rules stated below for the responses.

6. Inform the patient that you would ask again after 5 minutes about these objects and where they were placed.
7. Administer the tests of Letter Fluency and Category Fluency (taking approximately 5 minutes)
8. After completing the above tests, ask the patient *"Now, please recall the four objects and their specific locations where we have kept them sometime back."*
9. You may use the objects and the locations from the list given below. Make sure that
     a. The patient is familiar with all four objects.
     b. The objects are not similar to each other. Eg. Pen, Pencil
     c. The locations are not similar or next to each other. Eg. 1st drawer, 2nd drawer
     d. The object is well hidden at the location.
     e. Two objects are not placed at one location.
     f. The object is not too big to be difficult to hide.

Sample List of objects: comb, coin, key, pen, watch, chalk, identity card, folded paper
Sample List of locations: Drawer, under the bag, under the file, inside one of the pockets of your bag, your pocket.

Scoring:
1. Telling each object correctly in any phase of the testing should be scored '1' and incorrect response should be scored '0'. The same holds true for the respective locations.
2. If both the told object and its location are among the 4 pairs, but there is a mismatch between the object and the location. In this case, the object should be considered as a correct response and scored '1', and the location should be scored '0'.
3. If either the told object or its location is outside the 4 pairs, the one recalled correctly should be scored '1', and the other as '0'. Here, the correct response should not be a repeat response of object/ location.
   Following Table illustrates the above scoring rules

Scenario	Object	Location	Location Matching to the Object	Score for the object	Score for the location
1.	√	√	Yes	1	1
2.	√	√	No	1	0
3.	√	X	Not Applicable	1	0
4.	X	√	Not Applicable	0	1
5.	X	X	Not Applicable	0	0

Please note that this table is for illustration. You should put the final score for the response in each cell rather than whether the response was correct (√) or wrong (X).

4. There are 2 scores:
     a. 'Immediate visual recall' representing immediate visual memory. It is scored as the sum of the correct responses under 'object' and 'location' of the last attempt.
     b. 'Delayed visual recall' representing recent visual memory. It is scored as the sum of the correct responses under 'object' and 'location' of the attempt made after 5 minutes.

5. Category Fluency

Instructions:

Say the patient *"Now, I'd like you to tell as many animals as you can recall in your language. It can begin with any letter. The total time given will be 60 seconds. Though I said animals, I meant it to be any animal, bird or insect. These can be present anywhere on earth, land, water or sky. Please don't repeat the names. Have you understood? Are you ready? Yours 60 seconds starts now."*

If the patient didn't understand the instructions, you can give an example of another category such as food items, vehicles.

Scoring:

The total number of words generated correctly as per the rule in 60 seconds should be counted. The final score would be the score which is against the counted words according to the table put below.

Total correct responses	Total score
0	0
1-2	1
3-5	2
6-7	3
8-10	4
11-13	5
14-16	6
>16	7

6. Letter Fluency

Instructions:

1. This test can be attempted on a person of any education level, including those who cannot read or write. He/ she should have an understanding of different letters.
2. Try to use the patient's primary language. If he/ she prefers English, then you may use English. However, the English language should not be used for your convenience. If you do not know well the primary language of the patient, let an additional person familiar with the respective language be with you.
3. Choose any one letter from "F", "A", or "S" for English. For Indian languages, one letter among "Ka", "Pa", "Ma" can be used. The letter to be used as an example for explaining in the case of an Indian language can be "Sa" or "Cha". Words said under the illustrated letter should be familiar to the patient.
4. Prefer using the same letter used in the pre-ECT assessment in the post-ECT assessments also.

Say to the patient *"I'm going to give you a letter of the …. (Language spoken by the patient) alphabet and I'd like you to tell as many words as you can beginning with that letter. The total time given will be 60 seconds.*
The generated words should NOT be any of the following
1) Names of people/ pet without any specific meaning
2) Name of any place

3) Extension of the previously generated word as a related noun, adjective or verb in any tense.
For example, if I give you the letter "C", you could give me words like 'cat, cry, clock' and so on,
But you CAN'T give me words like 'Calicut, Chennai, Chintu, Claire'. If you had said 'come', then you CAN'T say 'Coming, came'.
Have you understood? Are you ready? The letter I want you to use is the letter……. Your 60 seconds will start now."

Scoring:
The total number of words generated correctly as per the rule in 60 seconds should be counted. The final score would be the score which is against the counted words according to the table put below.

Total correct responses	Total score
0	0
1	1
2	2
3-5	3
6-7	4
8-10	5
11-14	6
>14	7

7. Autobiographical Memory Questionnaire

Instructions:

1. Say to the patient *"Now, I will be asking you to recall different events and experiences you had in the past. Try to describe the event/experience with specific details such as*
   a. *when it happened,*
   b. *where it happened,*
   c. *how did it happen,*
   d. *persons involved/ present,*
   e. *your emotional state during the event/ experience (wherever relevant)."*
2. If the patient didn't understand the question, it's advisable to give an example. This is particularly important in item 4, where you give examples of disaster, death of a regional or national figure, and winning election or international sports trophy of patient's interest.
3. Encourage the patient to give a more specific answer by prompting: *"can you please be more specific?"* and record the specific details of the answer under the respective column for the response. The answers can be corroborated with the caregiver, if possible.
4. The responses before ECT (1st assessment) should be taken as a template against which his/her answers in the subsequent administration should be compared and scored. Thus, in the subsequent assessments, patient should be specifically asked to recall the same event that he/she described in the 1st administration.
5. Try to get description about those events in the 1st (before ECT) assessment, which can be scored fully. If one or the more items cannot be assessed for various reasons, the

option "Cannot be assessed" should be selected and the associated reason should be mentioned. If 3 or more items of Autobiographical memory cannot be assessed, then it is better to skip this section completely. Only those items which were answered in the 1st assessment should be asked in the subsequent assessments.

6. If the 1st assessment happens after 1 or more sessions of ECT because of any reasons, the described events for each category need to be scored on the personal judgement of interviewer about the completeness and authenticity of the event. If possible, try to get these events corroborated with the caregiver/ relative. In further sessions, this assessment should be considered as template and the same events under each item should be asked about.

7. The last item in this questionnaire is a qualitative assessment and should not be scored. The purpose is to pick up any event/experience of personal importance to the patient that she/he had forgotten after ECT, distressed by the same and was not picked up by the questionnaire.

Scoring:

- Raw Scores
    - Responses in 1st assessment*:
        - No recall (Score = 0)
        - Few/ Contradictory/ Patchy details (Score = 1)
        - Adequate and specific details (Score = 2).
    - Responses in follow-up assessments:
        - No recall/ Minimal matching to 1st response (Score = 0)
        - Partial matching to 1st response (Score = 1)
        - Adequate details; matching to 1st response (Score = 2).
- Individual raw scores do not hold any significance and the cumulative percentage drop in the score should be used to quantitatively assess the severity of the deficits
- **ABM Cumulative Percentage**

$$= \left(\frac{\text{Added Scores of each attempted category}}{\text{(Number of attempted categories in 1st assessment*) X 2}} \right) \text{X } 100$$

- Maximum possible cumulative percentage would be 100

1st assessment means where autobiographical memory was assessed successfully.

NIMHANS Revised B4ECT ReCoDe

NAME: _____   Age/ Sex: _____

UHID : _____   MRD   : _____

Assessment Date: _____   Last ECT Session Date & No. _____

Caregiver's Name: _____   Relation: _____

Currently staying with patient since how long: _____

Details of contact with patient prior to ECT course: _____

1. Auditory Verbal Learning and Memory

List A	Trial 1	Trial 2	Trial 3	List B	Trial 4	Trial 5 (List A)	Trial 6 (List A)
Target				Diamond			
Finger				Garden			
Evening				Office			
Crocodile				King			
Rupee				Monkey			

List A	Hindi	Kannada	Telugu	Tamil	List B	Hindi	Kannada	Telugu	Tamil
Target	लक्ष्य *Lakshya*	ಗುರಿ *Guri*	గురి *Guri*	குறி *Kuree*	Diamond	हीरा *Heera*	ವಜ್ರ *Vajra*	వజ్రము *Vajramu*	வைரம் *Vairam*
Finger	उँगली *Ungali*	ಬೆರಳು *Beralu*	వేలు *Velu*	விரல் *Veral*	Garden	बगीचा *Bagicha*	ತೋಟ *Thota*	తోట *Thota*	தோட்டம் *Thotam*
Evening	शाम *Shaam*	ಸಾಯಂಕಾಲ *Sayamkala*	సాయంకాలం *Sayamkalam*	மாலை *Maalai*	Office	कार्यालय *Karyalay*	ಕಛೇರಿ *office*	కార్యాలయము *Karyalayamu*	அலுவலகம் *Aluvalagam*
Crocodile	मगरमच्छ *Magarmachh*	ಮೊಸಳೆ *Mosale*	మొసలి *Mosali*	முதலை *Mudalai*	King	राजा *Raja*	ರಾಜ *Raja*	రాజు *Raju*	அரசன் *Arasan*
Rupee	रुपया *Roopayaa*	ರೂಪಾಯಿ *Rupayee*	రూపాయి *Rupayee*	ரூபாய் *Rubai*	Monkey	बंदर *Bandar*	ಕೋತಿ *Kothi*	కోతి *Kothi*	குரங்கு *Kurangu*

VERBAL LEARNING (TOTAL WORDS):

IMMEDIATE VERBAL RECALL: **DELAYED VERBAL RECALL:**

2. Orientation

Item No.	Item Details	Score
1	What part of the day it is now, Morning/ Afternoon/ Evening/ Night?	
2	What day of the week is today?	
3	What is the date today?	
4	Which month is today?	

5	Which place is this?	
	TOTAL SCORE	

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3. Subjective Cognition

Item No.	The Item *"As compared to your/his/her usual (maximum) ability, how much is your/ his/ her"*	Patient Rating (%)	Caregiver Rating (%)
1	Ability to **follow a conversation or the matter being discussed** while talking to someone or watching a video?		
2	Ability to **remember where you/he/she have/has kept the personal belongings/objects** ?		
3	Ability to **remember the way** within home/ here in hospital or in a familiar place outside.		
4	Ability to recall the details of the events which **happened in the last few days**?		
5	Ability to recall the details of **the events which happened few weeks to months back?**		
6	Ability to **recall the name or relation** with the person on meeting them or seeing their picture?		
7.	Ability to **get the desired word in the mind while talking to someone?**		
	SUBJECTIVE COGNITION SCORE		

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4. Visual Retention

	Attempt 1		Attempt 2		Attempt 3		Attempt after 5 min	
	Object	**Location**	**Object**	**Location**	**Object**	**Location**	**Object**	**Location**
1								
2								
3								
4								

IMMEDIATE VISUAL RECALL:

DELAYED VISUAL RECALL:

5. Category Fluency

Total Number of Animals said in 60 seconds: **SCORE:**

6. Letter Fluency

Letter used: **Total Number of Words said in 60 seconds:** **SCORE:**

F, A, S/ Ka, Pa, Ma

7. Autobiographical memory questionnaire

1. *(1st Assessment)* Can you talk about any festival/ family event (birthday, naming ceremony, marriage, funeral) that you have attended in the last one year?
(Follow up assessments) Can you describe about ………… that specific event that you mentioned in previous assessment and you had attended in the last one year?
☐ Cannot be assessed; reasons *(If checked)*:

Score (Item 1) =
Response Description (*Details about 'place', 'time of occurrence', 'people involved', 'emotions of the patient and others', 'process/ how it happened'*)

2. *(All Assessments)* Can you talk something about how you came here for admission to the hospital/ how you came to the OPD last time?
☐ Cannot be assessed; reasons *(If checked)*:

Score (Item 2) =
Response Description (*Details about 'place', 'time of occurrence', 'people involved', 'emotions of the patient and others', 'process/ how it happened'*)

3. *(1st Assessment)* Can you talk about any recent trip or out-station journey of yours?
(Follow up assessments) Can you talk about …………. that specific trip you had travelled?
☐ Cannot be assessed; reasons *(If checked)*:

Score (Item 3) =
Response Description (*Details about 'place', 'time of occurrence', 'people involved', 'emotions of the patient and others', 'process/ how it happened'*)

4. *(1st Assessment)* Can you recall now your personal experience related to any event of regional/ national / international importance that you remember? (For example *"Do you remember when India won Cricket world cup in 2011? How you came to know about it? With whom you were at that time? how did you and others react to that event"*)
(Follow up assessments) Can you recall now your personal experience when …… that specific national/ regional event happened.
☐ Cannot be assessed; reasons *(If checked)*:

Score (Item 4) =
Response Description (*Details about 'place', 'time of occurrence', 'people involved', 'emotions of the patient and others', 'process/ how it happened'*)

5. *(1st Assessment)* Can you talk about a memorable incident from your school time or the period related to job/ business/ household work? *(Time period to be selected based on patient's age, background and work profile)*
(Follow up assessments) Can you talk about ………….. That specific incident occurred during ………?
☐ Cannot be assessed; reasons *(If checked)*:

Score (Item 5) =
Response Description (*Details about 'place', 'time of occurrence', 'people involved', 'emotions of the patient and others', 'process/ how it happened'*)

6. Is there any event/ experience of personal importance to you and the details of which you have forgotten after the starting of ECT? If the answer is yes, record the event/experience in patient's own words.

Response Description (*Details about 'place', 'time of occurrence', 'people involved', 'emotions of the patient and others', 'process/ how it happened'*)

ABM CUMULATIVE PERCENTAGE: