

Supplemental Appendix 1

Appendix 1. FRONTIER Executive Screen Protocol.

FRONTIER EXECUTIVE SCREEN	
Name:	Date of testing:
Date of birth:	Tester's name:
Hospital no.:	Age at leaving full-time education:
Occupation:	Handedness:

VERBAL FLUENCY

- **Say:** "I'm going to give you a letter of the alphabet and I'd like you to generate as many words as you can beginning with that letter, but not names of people or places. Are you ready? You've got a minute and the letter is F." "You've got another minute, and this time the letter is P."

F				Total correct	Scaled score
				>30	5
				26-30	4
				21-25	3
P				17-20	2
				13-16	1
				<12	0
				Total Words	Total Correct
Total Scaled Score					/5

INHIBITION

- **Say:** "I am going to read you a series of sentences. Each sentence has the last word missing from it. I want you to listen carefully to each sentence, and when I have finished, I want you to give me a word that completes the sentence as quickly as possible. Do you understand?" *Repeat if necessary*

Part A (Not scored)				
Item	Sentence	Response	Error	Score
1A	The café would be a good place to...			
2A	To get into the house she used a...			
3A	The sink was made out of stainless...			
4A	During winter she wears a thick...			
5A	The flowers had a very pleasant...			

- **Say:** “Now, I am going to read you another set of sentences with the last word missing just like the ones you have just done. Again, you will need to complete each sentence as quickly as possible but this time, I want you to give me a word which does **NOT** fit at the end of the sentence – this word must be completely unconnected to the sentence in every way.” *Repeat if necessary INCLUDING when a response provided is strongly connected.*
- If a subject *uses* the same word in different sentences, say “You’ve already used that answer, from now on I want a different word each time.” Say **ONLY ONCE** and score further repeats as an error.

Part B (Scored). 1 point given if response is completely unrelated in every way.				
Item	Sentence	Response	Error	Score (0,1)
Practice	The grocer checked his stock before going...			
1B	The hungry bear found some stale...			
2B	We sprayed the yard to keep away the...			
3B	The lawyer feared that his client was...			
4B	John sat in his chair on the back...			
5B	It was clear that the leg was...			
Total Score				/5

WORKING MEMORY

- **Say:** “I’m going to say some letters. Pay close attention and listen to what I say. When I stop, I want you to say them backwards. For example, if I say T-K-R, what would you say?”
If correct: “That’s right”.
If incorrect: “No you would say R-K-T. I said T-K-R, so to say it backwards you would say R-K-T. Now try these letters. Remember, you are to say them backwards: X-Q-F.”
- Score 1 point if **EITHER** item within the set is correct.

Item	Trial	Response	Correct	Score (0,1)
Practice	T-K-R			
	X-Q-F			
1	T-K			
2	R-H-N			
	T-Y-Q			
3	N-K-F-X			
	Q-H-T-R			
4	F-Y-T-K-N			
	Y-X-K-R-Q			
Add 1 point if ALL items correct				
Total Score				/5

OVERALL SCORES

Verbal Fluency	/5
Inhibition	/5
Working Memory	/5
Total	/15

Appendix 2. FRONTIER Executive Screen Scoring Guide.

FRONTIER EXECUTIVE SCREEN SCORING GUIDE

The FRONTIER Executive Screen (FES) is a brief executive function screening test that assesses three cognitive abilities: generativity, inhibitory control and working memory. The total maximum score is 15, with higher scores indicating better executive functions. Administration of the FES takes, on average, 5 - 10 minutes and scoring takes < 5 minutes.

These instructions have been designed in order to make the questions and their scoring clear for the tester. Please read them carefully before giving the test. If possible, leave the scoring until the end of the session, so the participant will not be able to check whether the tester is ticking for correct answers or crossing for wrong ones. This might avoid anxiety, which can disturb the participant's performance on the test.

To download the FES, as well as updates on publications, please go to the following website:
<http://www.neura.edu.au/frontier/research>

VERBAL FLUENCY – score 0 to 5

Participant may repeat or perseverate words, for example *pay, paid, pays*. Record and count repetitions and perseverations, but only include the first word in the final score. Similarly, score one correct response when both the singular and plural form of a word is provided, for example *pot, pots*.

Intrusions such as words beginning with other letters are recorded but not scored. Proper names (Peter, Peterborough) do not count.

Use the table provided on the FRONTIER Executive Screen protocol to derive the final score.

INHIBITION – score 0 to 5

- On Part B, a response is classified as incorrect (i.e., score = 0) if the word produced is *NOT* completely unconnected to the sentence, as required. Such responses include those which:
 - correctly complete the sentence in a sensible fashion;
 - are obviously rude, ridiculous or inappropriate such as swear-words or abusive terms;
 - do not fit the sentence but are connected to the meaning of the sentence in some way;
 - are the opposite of the expected response.
- If in doubt, err towards leniency.

Inhibition Part B: Incorrect Sentence Completion Scoring Criteria

Sentence	Incorrect Sentence Completion
The hungry bear found some stale...	<ul style="list-style-type: none">○ Reference to food (e.g., bread, meat, crackers, honey, sandwiches);○ Reference to woodland (e.g., tree, wood)
We sprayed the yard to keep away the...	<ul style="list-style-type: none">○ Reference to insects (e.g., bugs, ants,

	<ul style="list-style-type: none"> flies, mosquitoes); ○ Reference to land animals (e.g., dogs, elephants, horses, dinosaurs); ○ Reference to plants (e.g., weeds, fennel)
The lawyer feared that his client was...	<ul style="list-style-type: none"> ○ Reference to behaviour (e.g., guilty, lying, crazy, sick, walking, hungry, abusive, dead) ○ Reference to identifying characteristic (e.g., blonde)
John sat in his chair on the back...	<ul style="list-style-type: none"> ○ Reference to location appropriate for sitting (e.g., porch, row, patio, legs, lawn, sofa, yard, railing)
It was clear that the leg was...	<ul style="list-style-type: none"> ○ Reference to leg injury (e.g., broken, infected, amputated, gone, injured, fractured, hurt, sore); ○ Reference to material (e.g., steel, transparent); ○ Reference to shape (e.g., round); ○ Reference to body parts (e.g., hand)

WORKING MEMORY – score 0 to 5

Participant can repeat backwards either sequence correctly within each item to receive credit (total = 1). If the participant fails to do so, score 0. If all items within the subtest are correct the participant will receive 1 additional point.