

Table 4.

DOCS test stimuli, administration procedures, and corresponding neuroanatomical level.

Item No.	Item Name	Test Stimuli and Administration Procedures (All Stimuli Are Administered on Right and Left Side)*	Highest Levels of Central Nervous System Processing
<p>General Administration Instructions: Baseline observation procedures <i>must</i> be completed prior to administering test stimuli. The first test item is <i>always</i> the social knowledge item and the last item is <i>always</i> auditory command following. The examiner determines the ordering for administering the items after social knowledge and before auditory command following.</p> <p>Each test stimulus is applied/presented for 3 to 5 seconds. The length of time between the application of a stimulus and a response is 5 to 10 seconds. The length of time for observing behaviors for true responses, in other words, is 5 to 10 seconds, and the time between the presentation of each test stimulus is at least 60 seconds.</p> <p>The goal is to elicit the patient's best response. Procedures that can be used to elicit best responses include administering a test stimulus two or more times if the highest possible score is not given.</p>			
<p>Social Knowledge General Instructions: This is <i>always</i> the first item after baseline observations. Place your body in front of patient at midline (within visual fields). Adapt language and grammar according to patient's cultural background.</p>			
C1	GREET	Say "Hi I'm "(state your name)." "How's it going?" Do not touch patient. Observe patient for a response for 5 to 10 seconds.	Bilateral Hemispheric Function
<p>Auditory General Instructions: Prior to presenting the test stimulus, you should provide the patient with simple instructions that include the name of the body part you are planning to touch (e.g., "I am going to touch your arm now"). The command item is <i>always</i> administered <i>last</i>. This allows you to determine what is or is not within the patient's motoric capabilities.</p>			
A1	WHISTLE	Blow whistle sharply and loudly one time behind each ear.	Pons (Lateral Lemniscus)
A2	CLAP	Clap hands sharply and loudly one time behind each ear.	
A3	NAME	Call out patient's name (first name or last name or nickname); with each repetition vary the inflection and loudness.	Midbrain (Inferior Colliculus) Thalamus (Medial Geniculate)
A4	TV	Use a program the patient was known to enjoy; TV should be outside patient's field of vision; turn on/off bilaterally.	
A5	BELL	Ring bell on left, wait for response, then repeat on right side.	
A6	COMMAND	Tell the patient to perform a one-step command that is within his/her motoric capacity; this item is always administered last so motoric capacity can be determined prior to administering the item.	Frontal Cortex, PreCentral Gyrus

Visual General Instructions: Prior to presenting each test stimulus, you should provide the patient with information about the test procedures. Tell the patient that you will be asking him/her to look at objects (e.g., “Joe, look at the ball” or “Joe, watch the ball” or “Joe, keep your eyes on the ball”). Familiar pictures will be required for two test items. When the patient checks in, staff should ask family members for familiar photographs with names of persons written on backs of photos. If this is not practical, then use a digital camera to take a photograph of family members at time of admission and print a color 5 × 7 photograph to use as stimuli or use an instamatic camera.

V1	DILATION	If spontaneous eye opening has not been observed or there is ptosis, gently hold the eyelids open, unless there are medical contraindications (e.g., stitches or infections). Hold the penlight 1 to 2 inches from the patient’s eye, turn on penlight for 1–3 seconds, and observe response.	Midbrain (Pretectal Nucleus)
V2	AMBIENT	Turn the lights off and wait 5 to 10 seconds (avoid inadvertent auditory or tactile stimulation of the patient). Turn the lights back on and observe the patient’s responses.	Thalamus (Lateral Geniculate Nucleus)
V3	BLINK	Rapidly move your hand toward the patient’s face from a stationary position about 12 inches away to about 2 inches away and flick your fingers. Avoid the inadvertent tactile stimulation of a rush of air. Repeat this in each of the following upper, middle, lower, left, and right visual fields. Look for a blink response.	Midbrain (Superior Colliculus) Medulla and Pons Connection
V4	FOCUS	Hold a 3-dimensional (3-D) object in the visual fields that are listed for each test item, approximately 18 inches from the face for 5 to 10 seconds. Repeat the upper, middle, lower, left, and right visual fields or until the highest score is given.	Bilateral Occipital Lobe Thalamus (Lateral Geniculate Nucleus)
V5	TRACKING	Horizontal: Present a 3-D object in the left visual field and slowly move the object to the right, across midline. Present a 3-D object in the right visual field, moving the object to the left, across midline. Vertical: Present a 3-D object in the middle visual field and slowly move the object upward. Present a 3-D object in the middle visual field moving the object downward.	Cortex (Parieto-Occipital Lobe) and Possibly Subcortical Structures
V6	CONVERGE	Present a 3-D object approximately 18 inches from the face, in the middle visual field, and slowly move the object forward until 6 inches from the middle of the eyes. Observe the eyes for convergence (i.e., eyes moving together focusing on the object).	Cortex (Geniculostriate Tract in Occipital Lobe)

V7	TRAKFACE	Horizontal: Present a familiar photograph in the left visual field and slowly move the object to the right, across midline. Repeat this procedure, but start in the right visual field moving the familiar photograph to the left across midline. Vertical: Present a familiar photograph in the middle visual field and slowly move the object upward. Repeat, but present same familiar photograph in the middle visual field moving the object downward.	Bilateral Temporal-Occipital Lobe and Right Inferior-Occipital Temporal Lobe Mesial Surface
V8	FOCUSFAC	Place a familiar photograph in the patient's visual fields using the same instructions (e.g., 18 inches from face) as stated with focusing test item. Observe patient for a response for 5 to 10 seconds. If additional trials are needed, then repeat procedure using different familiar pictures.	Right Greater than Left Occipital Lobe

Taste and Swallowing General Instructions: Prior to presenting the test stimulus, you should provide the patient with information about the test stimuli. Tell the patient what you will be doing and what setting or time of day he/she would experience this taste (e.g., "Here is a taste of orange juice—we drink it for breakfast").

S1	JUICE	Using a juice soaked cotton-tipped applicator, apply the taste to the lips and gums.	Upper-brain Stem and Possibly Diencephalon
S2	MASSAGE	Using your fingertips, provide firm pressure/massage slowly and downward along the masseter (i.e., jaw) muscle.	

		Using a juice-soaked cotton-tipped applicator or a toothette:	Upper-Brain Stem and Possibly Diencephalon
S3	TAP	<ul style="list-style-type: none"> Quickly tap the middle of the tongue. 	
S4	STROKE	<ul style="list-style-type: none"> Stroke the tongue in an anterior to posterior (front to back) pattern. 	
S5	GUMS	<ul style="list-style-type: none"> Provide deep-pressure massaging to the gums around the teeth or the roof of the mouth. 	
S6	ICING	Using ice cubes or chips, provide quick icing strokes in an upward movement along the sides of the Adam's apple.	
S8	SPOONW	Place room temperature metal spoon on patient's lower lip. The pressure placed on the spoon should resemble the same pressure you would place on your lips when eating. Observe patient for a response for 5 to 10 seconds. This item <i>always</i> precedes SpoonC item.	
S9	SPOONC	Place cold metal spoon (by placing it in a cup of ice chips) on patient's lower lip. The pressure placed on the spoon should resemble the same pressure you would place on your lips when eating. Observe patient for a response for 5 to 10 seconds.	Swallowing Motor Sequence: Medulla, Nucleus Tractus Solitarius, Nucleus Ambiguus and Precentral Gyrus for Motor Programming and Postcentral Gyrus in Sensory Cortex for Oral Sensory Programming
S7	SMELL	Using the extracts to soak cotton-tipped applicator, occlude the tracheostomy tube (if ordered by physician) and place the soaked applicator under the patient's nose, and tell the patient to smell the "name of scent."	Uncus of Temporal Lobe

Olfactory General Instructions: Prior to presenting the test stimulus, you should provide the patient with information about the test stimuli. Tell the patient what each odor is verbally and position it in the patient's visual field before and after giving each stimulus (i.e., "This smells like "name of odor").

O1	ODOR1	Using a cotton-tipped applicator soaked with orange, peppermint, or vanilla extract, place the soaked applicator 1 1/2 inch below the nostrils while simultaneously occluding the tracheostomy tube (if ordered by physician).	Swallowing Motor Sequence: Medulla, Nucleus Tractus Solitarius, Nucleus Ambiguus and Precentral Gyrus for Programming and Uncus of Temporal Lobe
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Proprioceptive and Vestibular General Instructions: Prior to presenting the test stimulus, you should provide the patient with information about the test stimulus. Tell the patient that you will be moving his/her arms and legs and putting them in different positions (e.g., "Joe, I am going to move your arm" or "Joe, I am going to help you sit up")

PV1	JOINT	Passively range a limb (e.g., arm, leg). Do not range to the extent of pain.	Parietal Lobe
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Tactile General Instructions: Prior to presenting the test stimulus, you should provide the patient with simple instructions that include the name of the body part you are planning to touch (e.g., “I am going to touch your arm now”).

T1	AIR	With a pressurized can of air, direct a stream of air to the center back of patient’s neck.	Parietal Lobe
T2	FEATHER	Start at knee and slowly move the feather down the front (top side) surface of the leg if skin is exposed.	
T3	HAIR	Without contacting the skin, lightly move the hairs on the top side of the forearm, in the direction opposite to that of the hair growth pattern.	
T4	TOE	Apply vibrator to patient’s big toe.	
T5	HAND	Using fingertips, apply firm pressure down inside surface of arm from shoulder to wrist.	
T6	SCRUB	Using kitchen scour pad, firmly apply a back-and-forth movement over biceps, forearm, and thigh.	
T7	SWAB	Using an alcohol swab, swipe the inside surface of the right forearm.	Parietal Lobe
T8	CUBE	Hold an ice cube in palm until melting starts.	

Testing readiness is a general state of readiness to respond, and it is observed and measured behaviorally. Testing readiness for this subject, during this evaluation, is defined by (Check Only One):

_____ Eye opening

_____ Motoric activity (use motoric activity as the measure only if yes is circled in questions 1 to 3 below). Specify the reliable motoric pattern/movement that will be used to indicate testing readiness (e.g., head movement): _____

Answer the following questions:

1. Is a third nerve palsy (i.e., third cranial nerve damage—inability to lift eye lids) **suspected?** YES or NO

2. Is cortical blindness (i.e., optic nerve damage) **suspected?** YES or NO

3. Is a bilateral ptosis (i.e., drooping of the upper eyelid) **suspected?** YES or NO

4. Auditory Stimuli (circle only one):

Subject required his or her name to be spoken to reestablish “testing readiness” = 0.

Subject did not require his or her name to be spoken to reestablish “testing readiness” = 1.

5. Tactile/Deep Pressure Stimuli (circle only one):

Subject required deep pressure to reestablish “testing readiness” = 0.

Subject did not require deep pressure to reestablish “testing readiness” = 1.

5. Passive Movement Stimuli (circle only one):

Subject required passive movement to reestablish “testing readiness” = 0.

Subject did not require passive movement to reestablish “testing readiness” = 1.

7. Rolling Stimuli (circle only one):

Subject required rolling to reestablish “testing readiness” = 0.

Subject did not require rolling to reestablish “testing readiness” = 1.

8. Rocking Stimuli (circle only one):

Subject required rocking stimuli to reestablish “testing readiness” = 0.

Subject did not require rocking stimuli to reestablish “testing readiness” = 1.

9. Maintaining State of Testing Readiness (circle only one):

Did the patient require stimulation intermittently throughout the evaluation to maintain a state of testing readiness? YES = 0 NO = 1

Note: Item numbers of test items correspond with numbers in **Table 3**, Part I, of main paper.

*Modality specific examples of generalized versus localized responses are not summarized given space limitations, but are available at no cost via written email request to Theresa.pape@ med.va.gov
