

Western Neuro Sensory Stimulation Profile (WNSSP)

I. AROUSAL/ATTENTION

1. Arousability: (eye opening/facial or body movement to voice/touch or shaking/raising bed/wet cloth on face)

- 0 = Requires REPEATED presentation of two or more stimuli
- 1 = TWO OR MORE stimuli
- 2 = ONE stimulus
- 3 = SPONTANEOUSLY AWAKE

2. Wakefulness: Longest period without being re-aroused

- 0 = < 10 min
- 1 = 11-20 min
- 2 = > 21 min (or all throughout testing session)

3. Eye Contact:

- 0 = Eyes CLOSED
- 1 = Eyes OPEN but not focused on examiner
- 2 = Eyes FOCUSED on examiner (50% or more)
- N = Physically unable to open eyes (CN III paralysis)

4. Attention to Task: Visual attention or ability to attend to tasks

- 0 = Attends <50% of time
- 1 = Attends >50% of time

II. AUDITORY RESPONSE

LOCALIZATION

5. Voice: Response to introductory remarks: "Hello my name is ..."

- 0 = NO response < 20 s
- 1 = UNDIFFERENTIATED (does not awaken and than = to all stimuli: posturing, hyperventilation, chewing)
- 2 = DIFFERENTIATED (awakens or ≠ to various stimuli: eye movement/head turn)

6. Sound: Best response to non-verbal sound (music/bell/clicker/tape recorder/sneeze/door slam ...*out of visual field*)

- 0 = NO response < 20 s
- 1 = UNDIFFERENTIATED (= to all stimuli: posturing, hyperventilation, blinking, chewing,)
- 2 = DIFFERENTIATED (≠ to various stimuli: eye movement/head turn, movement of part touched or named)

COMPREHENSION (of single-stage auditory commands, repeat once without penalty than use ≠ cues, score only coinciding responses, penalty for perseveration)

- 0 = NO response < 20 s
- 1 = Incorrect response
- 2 = Cued (prior visual modeling /touching /moving intended body part) delayed (>5 s) response
- 3 = Cued, prompt response
- 4 = Spontaneous, delayed response (response after more than 5 s)
- 5 = Spontaneous, prompt response

7. Shake my hand

8. Open/close mouth (if mouth is usually closed, use "open" for command)

9. Stick out tongue

10. Close/open eyes (if eyes are usually opened, use "closed" for command)

11. Raise eyebrows

12. Move body part (that patient can move spontaneously)

III. EXPRESSIVE COMMUNICATION

13. Vocalization:

- 0 = NO response
- 1 = Best spontaneous, non-meaningful VOCALIZATION (moaning, sighing, crying, other vocal noises)

- 2 = Best spontaneous, INAPPROPRIATE VERBALIZATION or mouthing of words irrelevant to the stimulus or unintelligible)
- 3 = Vocalizes on COMMAND (repetition of sound or word) or mouths words or verbalizes APPROPRIATELY either spontaneously or on command (intelligible, relevant speech)

14. Facial/Gestural expression for communication: (except for yes/no head nods)

- 0 = No response during the entire session (only RANDOM grimaces/reflex or involuntary behaviors)
- 1 = ONE (smiling/frowning/eyebrow/eye widening/pointing/reaching/shoulders/waving/pushing away)
- 2 = Uses > ONE gesture/facial expression with communicative intent

15. Yes/No Response: verbal or nonverbal (finger signals, eye gaze, buzzer system) to 3 verbal or written questions spontaneous responses may be given credit (Are you married?/Do you live in/ Were you born in the year...)

- 0 = NEITHER response observed
- 1 = Either "Yes" OR "No" response observed (does not need to be accurate, only present)
- 2 = BOTH responses observed (does not need to be accurate, only present)

IV. VISUAL RESPONSE

TRACKING (repeat several times)

Horizontal Tracking:

- 0 = NO response < 20 s
- 1 = Follows (from midline) to left OR right side
- 2 = Follows (from midline) to left AND right side
- 3 = Follows across midline from one side to the other

16. Horizontal mirror

17. Horizontal individual (slowly walk from one side of bed/chair around to opposite side, examiner or other person)

18. Horizontal picture (large, brightly colored familiar personality/greeting card/family picture)

19. Horizontal object (*no-sound producing*, brightly colored puppet/snow globe with moving parts)

20. Horizontal mirror

Vertical tracking:

- 0 = NO response < 20 s
- 1 = Follows (from midline) up OR down
- 2 = Follows (from midline) up AND down

21. Vertical picture

22. Vertical object

COMPREHENSION: Best response to single-stage written commands, "Read card & do what it says", direction may be repeated once & attention directed to card by pointing without penalty, than use ≠ cues. *Do not read card*

- 0 = NO response < 20 s
- 1 = Incorrect response
- 2 = Cued (prior visual modeling /touching or moving intended body part) delayed (>5 s) response
- 3 = Cued, prompt response
- 4 = Spontaneous, delayed response (response after more than 5 s)
- 5 = Spontaneous, prompt response

23. Open mouth (if mouth is usually closed, use "open" for command)

24. Stick out tongue

25. Close eyes (if eyes are usually opened, use "closed" for command)

26. Raise eyebrows

27. Move body part (that patient can move spontaneously)

V. TACTILE RESPONSE

LOCALIZATION

28. Touch: (non-painful tap on shoulder outside vision/ stimulation of ≠ body parts with brush, rough towel, comb)

0 = NO response < 20 s

1 = UNDIFFERENTIATED (= to all stimuli: reflexive posturing, hyperventilation, blinking, chewing,)

2 = DIFFERENTIATED (≠ to various stimuli: eye movement/head turn, movement of part touched or named)

29. Oral Stimulation: (stimulate external surface upper and lower lips with Q-tip)

0 = WITHDRAWAL/ABNORMAL reflexes (tonic bite, tongue or jaw thrust, lip retraction or pursing)

1 = PRIMITIVE REFLEXES (chewing, sucking, phasic bite, rooting)

2 = TOLERATES stimulation

OBJECT MANIPULATION ("This is a -. Show me how you use it")

0 = No response < 20 s

1 = Holds/releases object

2 = Moves object/uses it inappropriately

3 = Reaches for/pushes away object

4 = Uses appropriately cued (demonstrate correct use, help initiate by touching/raising arm)

5 = Uses appropriately spontaneously

N = Both arms casted or splinted

30. Manipulation spoon (present in field of vision or in hand if unable to take it)

31. Manipulation comb (if score <3 thought related to motor rather than cognitive limitations circle the score)

32. Manipulation pencil (try to elicit understanding of object's use by alternate means such as yes/no questions)

OLFACTORY RESPONSE (pleasant and unpleasant: cologne/foods: vinegar, cinnamon, coffee, garlic)

0 = No response < 20 s

1 = UNDIFFERENTIATED (= to all stimuli: reflexive posturing, hyperventilation, blinking, chewing,)

2 = DIFFERENTIATED (≠ to various stimuli: eye movement/head turn, movement of part touched or named)

N = Not applicable (tracheostomy)

REFERENCE

Ansell, B. J. and J. E. Keenan (1989). "The Western Neuro Sensory Stimulation Profile: a tool for assessing slow-to-recover head-injured patients." Arch Phys Med Rehabil **70**(2): 104-8.