SNAP:

SUNNYBROOK NEGLECT ASSESSMENT PROCEDURE

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ADMINISTRATION AND SCORING MANUAL

VERSION 2.2
APRIL 24, 2001

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SNAP: SUNNYBROOK NEGLECT ASSESSMENT PROCEDURE

ADMINISTRATION AND SCORING MANUAL

INTRODUCTION

SNAP (Sunnybrook Neglect Assessment Procedure) is a simple to use test battery for neglect. It is designed to be administered at the bedside in the acute stage following stroke, and can be used to monitor recovery of neglect at later stages.

Tools Required

SNAP - Sunnybrook Neglect Assessment Procedure package
Two blank sheets of paper
Pen/pencil

Order of Administration

Spontaneous drawing of clock and daisy
Line cancellation
Line bisection
Copying of clock and daisy
Shape cancellation

<u>ADMINISTRATION</u>

A1. Drawing Tasks

Instructions

1. Place a blank piece of paper in front of the patient, ensuring the page is midline to the patient.
2. Repeat to the patient:
    " **I want you to draw a clock face and make sure you put all of the numbers on the clock**".
3. With a fresh piece of blank paper, say to the patient:
    "Now, I want you to draw a daisy, a flower with many petals".

A2. Copying Tasks

Instructions

1. Place the picture of the clock in front of the patient and align the test midline to the patient.
2. Repeat to the patient:
    " **I want you to copy this <u>picture</u> the best you can**".
    Do **<u>not</u>** tell the patient it is a picture of a clock face.
3. Using the picture of a daisy, repeat to the patient:
    "**I want you to copy this <u>picture</u> the best you can**".
    Again, do **<u>not</u>** tell the patient it is a picture of a daisy.
    ## B. Line Cancellation Task

Instructions

1. Centre the line cancellation task in front and midline to the patient.
2. Repeat: "**For this task I want you to cross out all of the lines on this page**".
3. Demonstrate the task by crossing out the one line in the center of the page.
4. Say to the patient:
    " **Let me know when you are finished the task**".
5. Mark a T at the top of the page to ensure the test is scored correctly.

C. Line Bisection Task

Instructions

1. Centre the 15 cm lines at the patient's midline.
2. Repeat:
    "**For this task I want you to make a mark on this line so it divides the line into two equal halves. I want you to draw a mark that cuts this line exactly in half**".
3. Repeat the procedure using the bottom line.
4. Mark the top of the page to ensure the task is scored correctly.
5. Repeat the entire procedure using the 20 cm lines.

D. Shape Cancellation Task

Instructions

1. Centre the test at the patient's midline.
2. Draw the target on a piece of paper and say " **I have just drawn the target. It looks like a sun with a line drawn through it. You have to circle all the targets on this page. Do not circle anything else other than the target. When you are satisfied that you have circled all the targets let me know that you are finished**".
3. Begin timing the patient when the first target is circled and stop when the patient states they are finished or puts the pencil down.
4. Change to a different colored pencil crayon after every tenth target circled so that the search pattern can be determined.
5. Mark the top of the page to ensure the task is scored correctly.

Figure 1: Example of the Shape Cancellation Target
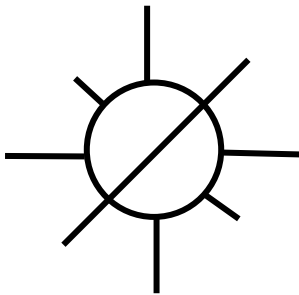
<u>SCORING</u>

Scoring of the various sub-tasks is based on omissions made contralateral to the side of brain damage. Therefore, left-sided omissions are scored in patients with right hemisphere-damage and right-sided omissions in patients with left hemisphere-damage. Separate scoring sheets are used for patients with right and left hemisphere strokes.

A1&2. Copying and Drawing

The decision rules with respect to the drawing and copying tasks are based on a blinded study of elderly controls and stroke patients. They may seem arbitrary, at times, but we were guided by the need to balance reliability as well as sensitivity.

All copying and drawing tasks are scored the same. Drawings with significant omissions of detail on the contralateral half are scored as having neglect. Omissions include detail missing on the contralateral half, which is present on the ipsilateral half, for example, missing numbers on the clock face or missing petals on the daisy and/or leaves on the stem. Poorly placed numbers or petals that results in gaps are not scored as errors of omissions. See the examples of drawings in Figures 2-5. Drawings that are not recognizable due to lack of hand control or constructional apraxia are scored as unassessable.
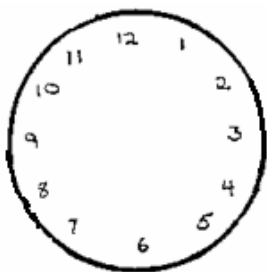

Figure 2: Examples of Clocks Not Scored as Neglect

Figure A1: Copied clock, no omissions noted.

Figure A2: Drawn clock with a left-sided gap. The gap is not scored as neglect since all numbers are present and it is likely due to poor planning.

Figure A3: Drawn clock with both right and left-sided gaps not scored as neglect since no numbers are missing and the gaps are on both sides.
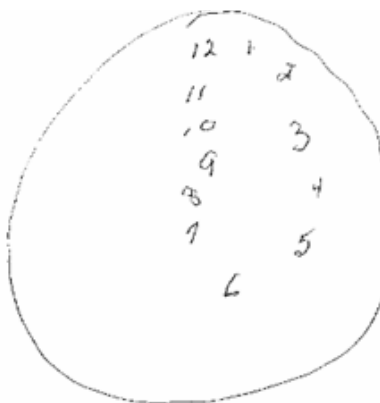
Figure A4: Drawn clock not scored as neglect. Although all the detail is toward the right half, there are no missing numbers and the drawing could be the result of poor planning.

Figure 3: Examples of Daisies Not Scored as Neglect

Figure B1: Copied daisy. No neglect demonstrated. There are an equal number of petals on each half and a leaf on both sides of the stem.

Figure B2: Drawn daisy. Although there is a gap on the bottom right corner, this is not scored as neglect since there are an equal number of petals on the right and left halves. Compare with Figure D1.

Figure 4: Examples of Clocks Scored as Neglect

Figure C1: Drawn clock with all numbers missing on the left side. Scored as neglect.
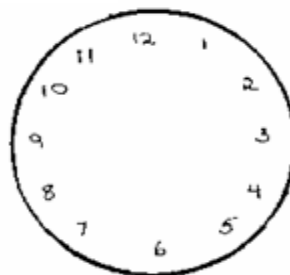
Figure C2: Drawn clock with missing numbers. Scored as neglect.

Figure 5: Examples of Daisies Scored as Neglect

Figure D1: Copied daisy with missing petal on right side. Note there is an unequal number of petals on each half. Scored as neglect. Compare with Figure B2.

Figure D2: Copied daisy with obvious omissions on left. Scored as neglect.

Figure D3: Copied daisy with a missing leaf on the left side of the stem. Scored as neglect.

Figure D4: Drawn daisy with omissions of detail on the left, both leaves and petals are less numerous on the left.

Figure 6: Example of Drawing and Copying by a right hemisphere-damaged patient

Drawing of a Clock

Copy of a Clock

Drawing of a Daisy

Copy of a Daisy
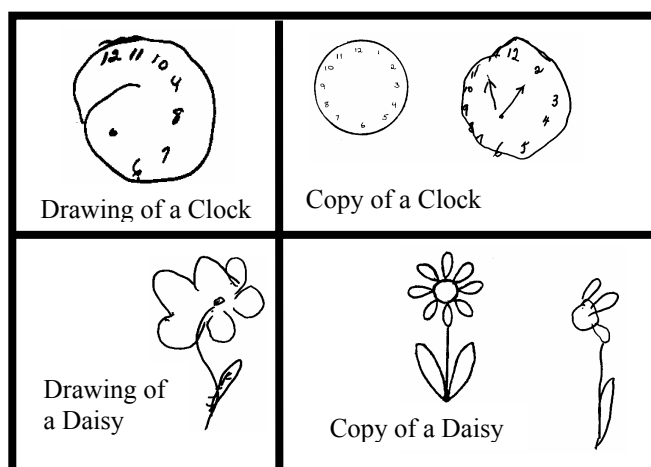
Example of a right hemisphere stroke patient's performance on the drawing and copying tasks. In this case, two pictures are scored as having neglect (draw-clock and copy-daisy).

B. Line Cancellation

Omission of any line on the contralateral half of the page is scored as neglect. There is a maximum of 10 omitted lines per side.

Figure 7: Example of a right hemisphere stroke patient's performance on the line cancellation task. Six lines are missed on the contralateral half of the page.
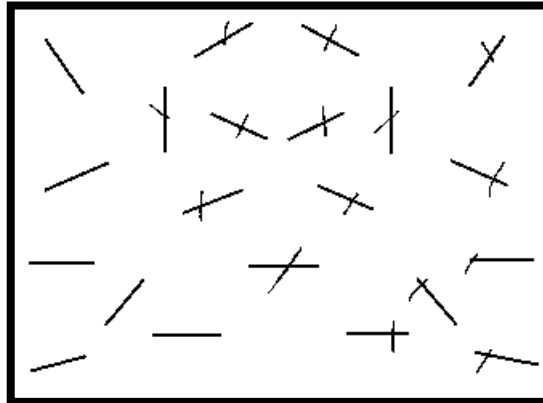
C. Line Bisection

Line bisection score is based on the mean percent deviation of the patient's mark from the true midpoint. Measure each line from the left and determine the percent deviation from Table 2. Note there are different percent deviation values for the 15 and 20 cm lines. Add up the percent deviations from all four lines and divide by 4 to obtain the mean percent deviation.

Figure 8: Example of a right hemisphere stroke patient's performance on the line bisection task. The distance in centimeters along the line that the patient has 'bisected' the line is shown. That distance is used to calculate the percent deviation in Table 1.

Example of 20 cm line (not drawn to scale)

Formula to calculate percent deviation: $[Distance(cm)-10]\div10\times100 = \%$ deviation

Example of 15 cm line (not drawn to scale)

Formula to calculate percent deviation: $[Distance(cm)-7.5]\div7.5\times100 = \%$ deviation

D. Shape Cancellation

All targets omitted on the contralateral half of the page are counted. There are 30 targets on each half of the page.

Figure 9: Example of a right hemisphere stroke patient's performance on the shape cancellation task. In this case, all 30 targets were missed on the contralateral half of the page, in addition to some ipsilateral targets being missed.
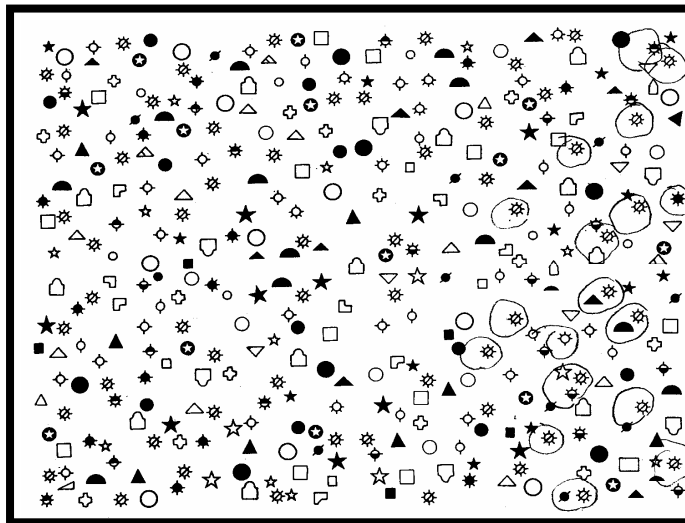
INTERPRETATION

Performance on SNAP can be classified according to neglect severity and is summarized in Table 1.

Table 1: Classification of performance on the SNAP

SNAP Score	Classification of Performance
0-5	Normal Performance
6-40	Mild Neglect
41-100	Severe Neglect

Table 2: Percent Deviation Calculations for the Line Bisection Task

15 cm Line		20 cm Line	
Distance	**% Deviation**	**Distance**	**% Deviation**
5.8 cm	-23	8.3 cm	-17
5.9 cm	-21	8.4 cm	-16
6.0 cm	-20	8.5 cm	-15
6.1 cm	-19	8.6 cm	-14
6.2 cm	-17	8.7 cm	-13
6.3 cm	-16	8.8 cm	-12
6.4 cm	-15	8.9 cm	-11
6.5 cm	-13	9.0 cm	-10
6.6 cm	-12	9.1 cm	-9
6.7 cm	-11	9.2 cm	-8
6.8 cm	-9	9.3 cm	-7
6.9 cm	-8	9.4 cm	-6
7.0 cm	-7	9.5 cm	-5
7.1 cm	-5	9.6 cm	-4
7.2 cm	-4	9.7 cm	-3
7.3 cm	-3	9.8 cm	-2
7.4 cm	-1	9.9 cm	-1
7.5 cm	0	10.0 cm	0
7.6 cm	1	10.1 cm	1
7.7 cm	3	10.2 cm	2
7.8 cm	4	10.3 cm	3
7.9 cm	5	10.4 cm	4
8.0 cm	7	10.5 cm	5
8.1 cm	8	10.6 cm	6
8.2 cm	9	10.7 cm	7
8.3 cm	11	10.8 cm	8
8.4 cm	12	10.9 cm	9
8.5 cm	13	11.0 cm	10
8.6 cm	15	11.1 cm	11
8.7 cm	16	11.2 cm	12
8.8 cm	17	11.3 cm	13
8.9 cm	19	11.4 cm	14
9.0 cm	20	11.5 cm	15
9.1 cm	21	11.6 cm	16
9.2 cm	23	11.7 cm	17
9.3 cm	24	11.8 cm	18
9.4 cm	25	11.9 cm	19
9.5 cm	27	12.0 cm	20
9.6 cm	28	12.1 cm	21
[Distance(cm)-7.5]÷7.5×100 = % deviation		[Distance(cm)-10]÷10×100 = % deviation	

Table 3: Score Calculation for the Line Bisection Task

| SCORE | Normal Limits | |
	Mean % Deviation for Left Hemisphere-Damaged Patients	Mean % Deviation for Right Hemisphere-Damaged Patients
0	$\geq$ -3.6	$\leq$ 2.8
2	< -3.6	> 2.8
4	< -7.0	> 5.4
6	< -10.1	> 8.5
8	< -13.2	> 11.6
10	< -16.3	> 14.6

Scores for the line bisection task are calculated using the above chart and the average percent deviation. For example, a patient with left hemisphere damage and an average deviation on the four lines of –9.6% would get a score of 4. Similarly, a patient with right hemisphere damage and an average deviation of 25% would get a score of 10. For patients with bilateral hemisphere damage, the cutoff in either direction would be used. For example, a patient with bilateral damage who had a mean deviation of –11% would be given a score of 6, as would the same individual if their mean deviation was 10%.

Example of SNAP Scoring for a Right Hemisphere-Damaged Patient

A. Drawing and Copying

Number of Pictures with Neglect	Corresponding Score
0	0
1	20
(2)	(30)
3	30
4	30

Enter Picture Score __30__

B. Line Cancellation

Number of lines missed on right side of page (max. 10): ___6___ x 3 = ___18___

Enter Score Here __18__

C. Line Bisection

Line	Distance in cm	% deviation from Table 1
1. 15 cm	14.0	86.67%
2. 15 cm	8.9	18.67%
3. 20 cm	18.4	84%
4. 20 cm	16.3	63%
	5. Total % deviation	252.34%
	6. Mean % deviation (divide by 4)	63.09%
	7. Score (# of s.d. from normal mean x 2)	10

Enter Score Here __10__

D. Shape Cancellation

Number of targets missed on contralateral side of page (max. 30):

Enter Score Here __30__

E. Total Score

Add up score from each section for a total score out of 100.
Round to the nearest whole number.

Total Score **88** **/100**

Classification: _____**No Neglect** _____**Mild Neglect** __✔__**Severe Neglect**

Score Sheet for SNAP

A. Drawing and Copying

Number of Pictures with Neglect	Corresponding Score
0	0
1	20
2	30
3	30
4	30

Enter Picture Score_____

B. Line Cancellation

Number of lines missed on right side of page (max. 10): _____ x 3 =_____

Enter Score Here _____

C. Line Bisection

Line	Distance in cm	% deviation from Table 1
1. 15 cm		
2. 15 cm		
3. 20 cm		
4. 20 cm		
	5. Total % deviation	
	6. Mean % deviation (divide by 4)	
	7. Score (# of s.d. from normal mean x 2)	

Enter Score Here _____

D. Shape Cancellation

Number of targets missed on contralateral side of page (max. 30):

Enter Score Here _____

E. Total Score
Add up score from each section for a total score out of 100.
Round to the nearest whole number.

Total Score **/100**

Classification: _____No Neglect _____Mild Neglect _____Severe Neglect