

APPENDIX: UNIFIED MSA RATING SCALE (UMSARS)
Part I: Historical Review

Rate the average functional situation for the past 2 weeks (unless specified) according to the patient and caregiver interview. Indicate the score that best fits with the patient status. Rate the function independently from the nature of the signs.

1. Speech		_____
0	Not affected.	
1	Mildly affected. No difficulties being understood.	
2	Moderately affected. Sometimes (less than half of the time) asked to repeat statements.	
3	Severely affected. Frequently (more than half of the time) asked to repeat statements.	
4	Unintelligible most of the time.	
2. Swallowing		_____
0	Normal.	
1	Mild impairment. Choking less than once a week.	
2	Moderate impairment. Occasional food aspiration with choking more than once a week.	
3	Marked impairment. Frequent food aspiration.	
4	Nasogastric tube or gastrostomy feeding.	
3. Handwriting		_____
0	Normal	
1	Mildly impaired, all words are legible.	
2	Moderately impaired, up to half of the words are not legible.	
3	Markedly impaired, the majority of words are not legible.	
4	Unable to write.	
4. Cutting food and handling utensils		_____
0	Normal.	
1	Somewhat slow and/or clumsy, but no help needed.	
2	Can cut most foods, although clumsy and slow; some help needed.	
3	Food must be cut by someone, but can still feed slowly.	
4	Needs to be fed.	
5. Dressing		_____
0	Normal.	
1	Somewhat slow and/or clumsy, but no help needed.	
2	Occasional assistance with buttoning, getting arms in sleeves.	
3	Considerable help required, but can do some things alone.	
4	Completely helpless.	
6. Hygiene		_____
0	Normal.	
1	Somewhat slow and/or clumsy, but no help needed.	
2	Needs help to shower or bathe; or very slow in hygienic care.	
3	Requires assistance for washing, brushing teeth, combing hair, using the toilet.	
4	Completely helpless.	

(Part I, continued)

7. Walking		_____
0	Normal.	
1	Mildly impaired. No assistance needed. No walking aid required (except for unrelated disorders).	
2	Moderately impaired. Assistance and/or walking aid needed occasionally.	
3	Severely impaired. Assistance and/or walking aid needed frequently.	
4	Cannot walk at all even with assistance.	
8. Falling (rate the past month)		_____
0	None.	
1	Rare falling (less than once a month).	
2	Occasional falling (less than once a week).	
3	Falls more than once a week.	
4	Falls at least once a day (if the patient cannot walk at all, rate 4).	
9. Orthostatic symptoms		_____
0	No orthostatic symptoms.*	
1	Orthostatic symptoms are infrequent and do not restrict activities of daily living.	
2	Frequent orthostatic symptoms developing at least once a week. Some limitation in activities of daily living.	
3	Orthostatic symptoms develop on most occasions. Able to stand > 1 min on most occasions. Limitation in most of activities of daily living.	
4	Symptoms consistently develop on orthostasis. Able to stand < 1 min on most occasions. Syncope/presyncope is common if patient attempts to stand.	
	*Syncope, dizziness, visual disturbances or neck pain, relieved on lying flat.	
10. Urinary function*		_____
0	Normal.	
1	Urgency and/or frequency, no drug treatment required.	
2	Urgency and/or frequency, drug treatment required.	
3	Urge incontinence and/or incomplete bladder emptying needing intermittent catheterization.	
4	Incontinence needing indwelling catheter.	
	*Urinary symptoms should not be due to other causes.	
11. Sexual function		_____
0	No problems.	
1	Minor impairment compared to healthy days.	
2	Moderate impairment compared to healthy days.	
3	Severe impairment compared to healthy days.	
4	No sexual activity possible.	
12. Bowel function		_____
0	No change in pattern of bowel function from previous pattern.	
1	Occasional constipation but no medication needed.	
2	Frequent constipation requiring use of laxatives.	
3	Chronic constipation requiring use of laxatives and enemas.	
4	Cannot have a spontaneous bowel movement.	
Total score Part I:		_____

Part II: Motor Examination Scale

Always rate the worst affected limb.

1. Facial expression		_____
0	Normal.	
1	Minimal hypomimia, could be normal ("Poker face").	
2	Slight but definitely abnormal diminution of facial expression.	
3	Moderate hypomimia; lips parted some of the time.	
4	Masked or fixed facies with severe or complete loss of facial expression, lips parted 0.25 inch or more.	
2. Speech		_____
	The patient is asked to repeat several times a standard sentence.	
0	Normal.	
1	Mildly slow, slurred, and/or dysphonic. No need to repeat statements.	
2	Moderately slow, slurred, and/or dysphonic. Sometimes asked to repeat statements.	
3	Severely slow, slurred, and/or dysphonic. Frequently asked to repeat statements.	
4	Unintelligible.	

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3. Ocular motor dysfunction _____
Eye movements are examined by asking the subject to follow slow horizontal finger movements of the examiner, to look laterally at the finger at different positions, and to perform saccades between two fingers, each held at an eccentric position of approximately 30°. The examiner assesses the following abnormal signs: (1) broken-up smooth pursuit, (2) gaze-evoked nystagmus at an eye position of more than 45 degrees, (3) gaze-evoked nystagmus at an eye position of less than 45 degrees, (4) saccadic hypermetria. Sign 3 suggests that there are at least two abnormal ocular motor signs, because Sign 2 is also present.
- 0 None.
 - 1 One abnormal ocular motor sign.
 - 2 Two abnormal ocular motor signs.
 - 3 Three abnormal ocular motor signs.
 - 4 Four abnormal ocular motor signs.
4. Tremor at rest (rate the most affected limb) _____
- 0 Absent.
 - 1 Slight and infrequently present.
 - 2 Mild in amplitude and persistent. Or moderate in amplitude, but only intermittently present.
 - 3 Moderate in amplitude and present most of the time,
 - 4 Marked in amplitude and present most of the time,
5. Action tremor _____
Assess postural tremor of outstretched arms (A) and action tremor on finger pointing (B). Rate maximal tremor severity in Task A and/or B (whichever is worse), and rate the most affected limb.
- 0 Absent.
 - 1 Slight tremor of small amplitude (A). No interference with finger pointing (B).
 - 2 Moderate amplitude (A). Some interference with finger pointing (B).
 - 3 Marked amplitude (A). Marked interference with finger pointing (B).
 - 4 Severe amplitude (A). Finger pointing impossible (B).
6. Increased tone (rate the most affected limb) _____
Judged on passive movement of major joints with patient relaxed in sitting position; ignore cogwheeling.
- 0 Absent.
 - 1 Slight or detectable only when activated by mirror or other movements.
 - 2 Mild to moderate.
 - 3 Marked, but full range of motion easily achieved.
 - 4 Severe, range of motion achieved with difficulty.
7. Rapid alternating movements of hands _____
Pro-supination movements of hands, vertically or horizontally, with as large an amplitude as possible, each hand separately, rate the worst affected limb. Note that impaired performance on this task can be caused by bradykinesia and/or cerebellar incoordination. Rate functional performance regardless of underlying motor disorder.
- 0 Normal.
 - 1 Mildly impaired.
 - 2 Moderately impaired.
 - 3 Severely impaired.
 - 4 Can barely perform the task.
8. Finger taps _____
Patient taps thumb with index finger in rapid succession with widest amplitude possible, each hand at least 15 to 20 seconds. Rate the worst affected limb. Note that impaired performance on this task can be caused by bradykinesia and/or cerebellar incoordination. Rate functional performance regardless of underlying motor disorder.
- 0 Normal.
 - 1 Mildly impaired.
 - 2 Moderately impaired.
 - 3 Severely impaired.
 - 4 Can barely perform the task.
9. Leg agility _____
Patient is sitting and taps heel on ground in rapid succession, picking up entire leg. Amplitude should be approximately 10 cm, rate the worst affected leg. Note that impaired performance on this task can be caused by bradykinesia and/or cerebellar incoordination. Rate functional performance, regardless of underlying motor disorder.
- 0 Normal.
 - 1 Mildly impaired.
 - 2 Moderately impaired.
 - 3 Severely impaired.
 - 4 Can barely perform the task.
10. Heel-knee-shin test _____
The patient is requested to raise one leg and place the heel on the knee, and then slide the heel down the anterior tibial surface of the resting leg toward the ankle. On reaching the ankle joint, the leg is again raised in the air to a height of approximately 40 cm and the action is repeated. At least three movements of each limb must be performed for proper assessment. Rate the worst affected limb.
- 0 Normal.
 - 1 Mildly dysmetric and ataxic.
 - 2 Moderately dysmetric and ataxic.
 - 3 Severely dysmetric and ataxic.
 - 4 Can barely perform the task.
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(Part II, continued)

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- 11. Arising from chair _____
Patient attempts to arise from a straight-back wood or metal chair with arms folded across chest.
 - 0 Normal.
 - 1 Clumsy, or may need more than one attempt.
 - 2 Pushes self up from arms of seat.
 - 3 Tends to fall back and may have to try more than once but can get up without help.
 - 4 Unable to arise without help.
 - 12. Posture _____
 - 0 Normal.
 - 1 Not quite erect, slightly stooped posture; could be normal for older person.
 - 2 Moderately stooped posture, definitely abnormal; can be slightly leaning to one side.
 - 3 Severely stooped posture with kyphosis; can be moderately leaning to one side.
 - 4 Marked flexion with extreme abnormality of posture.
 - 13. Body sway _____
Rate spontaneous body sway and response to sudden, strong posterior displacement produced by pull on shoulder while patient erect with eyes open and feet slightly apart. Patient has to be warned.
 - 0 Normal.
 - 1 Slight body sway and/or retropulsion with unaided recovery.
 - 2 Moderate body sway and/or deficient postural response; might fall if not caught by examiner.
 - 3 Severe body sway. Very unstable. Tends to lose balance spontaneously.
 - 4 Unable to stand without assistance.
 - 14. Gait _____
 - 0 Normal.
 - 1 Mildly impaired.
 - 2 Moderately impaired. Walks with difficulty, but requires little or no assistance.
 - 3 Severely impaired. Requires assistance.
 - 4 Cannot walk at all, even with assistance.

Total score Part II: _____

Part III: Autonomic Examination

Supine blood pressure and heart rate are measured after 2 minutes of rest and again after 2 minutes of standing. Orthostatic symptoms may include lightheadedness, dizziness, blurred vision, weakness, fatigue, cognitive impairment, nausea, palpitations, tremulousness, headache, neck and "coat-hanger" ache.

Systolic blood pressure	Supine	_____
	Standing (2 minutes)	_____
	Unable to record	_____
Diastolic blood pressure	Supine	_____
	Standing (2 minutes)	_____
	Unable to record	_____
Heart rate	Supine	_____
	Standing (2 minutes)	_____
	Unable to record	_____
Orthostatic symptoms	Yes	_____
	No	_____

Part IV: Global Disability Scale

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- 1. Completely independent. Able to do all chores with minimal difficulty or impairment. Essentially normal. Unaware of any difficulty.
 - 2. Not completely independent. Needs help with some chores.
 - 3. More dependent. Help with half of chores. Spends a large part of the day with chores.
 - 4. Very dependent. Now and then does a few chores alone or begins alone. Much help needed.
 - 5. Totally dependent and helpless. Bedridden.
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