

## Tele-EDSS Examination Protocol

### Examination Kit:

- Sealable plastic bag
- Rosenbaum near card
- 1 safety pin
- 2 cotton swabs
- 2 alcohol wipes
- 128 Hz Tuning fork
  - Eliminated as infrequently used: Pinhole glasses (4\$)

### INTRODUCTION

Similar to how your Doctor did their examination during your visits to UCSF, we are going to do an exam today.

Some aspects might be different from your typical examination, due to the differences in technology.

If at any point you need to take a break, just let me know.

Before we start, Is *someone* near you during this exam? (If yes) What are they helping us with today?

Now, let's make sure that you have good lighting behind your device (make sure can see EOMs; if cannot, ask them to set up a light or flashlight).

Now, let's make sure that I can see your knees and feet. Could you orient your camera down so that I can see your knees and feet? (instruct patient to move camera, smartphone or tablet so knees and feet are visible; if camera is static, instruct them to move their chair so that knees and feet visible)

OK, thank you, you can move the camera back to your face.

I would like to instruct you now on how to use the tuning fork. OK, now pick up your tuning fork. Let's take a minute and practice. See how I am holding it down here on the stem? Make sure you hold the bottom part, the stem, and not the wishbone part. Now watch how I am going to do this. I am going to strike the top part into my palm. Can you see how it vibrates? Now, touch the tip of the stem to your hand. Do you feel the buzzing? [failure = 1 min of attempts]

## EXAMINATION

OK, let's get started.

First, I am going to ask you about a few symptoms, about how things are working, before we get to testing your function.

### CEREBRAL

#### Cognition

Some of these questions might seem a little silly, but could you give me your name?

What is today's date? What day of the week is it? And what is the address where you are currently?

Has MS affected your thinking in any way, in terms of your attention, your memory, your speech? [...]

#### Mood

Has MS affected your mood in any way, whether this means sadness, depression or irritability? [...]

#### Fatigue

Do you experience fatigue in your daily life? (If yes), does this limit your activities? By how much? [...]

### BLADDER AND BOWEL

#### Bladder

Regarding your bladder, do you have any difficulties with a sudden urge to urinate? Any increase in the number of times you need to urinate? Any problems emptying your bladder fully? [...]

#### Bowels

Regarding your bowels, do you experience any constipation or incontinence? [...]

Score all fields except sexual dysfunction, interview patient regarding each symptom

### VISUAL/OPTIC

Now, we are going to move to examining your eyes.

For this we will need the letter chart.

Do you regularly wear glasses for reading? If so, we will need those as well.

#### Visual Acuity

Please hold the card in the right hand, at a distance that feels most comfortable for you.

Please cover your left eye with your left hand. Look at the vision card with your right eye.

Please read the line of smallest letters that you can read. [...]

Let's give your eyes a little break.

OK now we are going to cover your right eye with your right hand, and you are going to hold the letter card in your left hand.

Now, reading from right to left, please read the line of smallest letters that you can read. [...]

#### Visual Fields/Scotoma

OK now please keep your right eye covered.

Look straight at me. Can you see all 4 corners of your field of vision? (adapt to patient's home environment)

Are there any spots in your vision that appear blurry? [...]

OK now please switch eyes and cover your left eye.

Look straight at me. Can you see all 4 corners of your field of vision? (adapt to patient's home environment)

Are there any spots in your vision that appear blurry? [...]

#### Red desaturation

Please keep your left eye covered and look at this piece of red paper that I am holding.

Observe the richness and brightness of the red.

Now switch eyes.

Does the red look any different in terms of redness, richness or brightness?

### BRAINSTEM

#### EOM/Nystagmus

OK, now uncover your eye. Keep your face facing straight forward.

Look to the left. Look to the right.

Look to the [left target in patient's room] on left. Look to the [right target in patient's room].

Look to the left and up. Look to the left and down.

Look to the right and up. Look to the right and down.

Any double vision? [...]

#### Trigeminal

Now we are going to check the sensation in your face.

Let's take the cotton swab out of your bag.

Gently touch the cotton end to the skin on your right and left forehead (mime). Do they feel the same on both sides? [...]

Gently touch your right and left cheekbone. Do they feel the same on both sides? [...]

Gently touch your right and left chin. Do they feel the same on both sides? [...]

[Instruct patient to cut swab and repeat with sharp end]

#### Face

Please smile. Please frown. Open your eyes wide open. Shut them tight.

#### Hearing

Rub your fingers by your right ear and then your left ear. Do they sound the same?

#### Shoulder shrug

Shrug your shoulders and relax. Shrug again, and relax.

#### Bulbar

Stick your tongue out, like this. Can you wiggle it left and right?

Could you open your mouth wide open, and say ah? [Can ask patient to use flashlight or flashlight on their smartphone if available and feasible]

[If any dysarthria detected to this point] Please repeat the following sounds.

Do you experience any difficulty swallowing? Liquids or solids or both? [...]

### PYRAMIDAL

Now we are going to test the strength in your arms and legs.

### Upper extremities

To test your arms, I would like to watch you from the side. [Either ask patient to sit sideways, or to move camera to the side]

[Model the following]:

Hold up your arms like you are stopping traffic.

Now hold them like you are holding up a pizza pie. Close your eyes for 10 seconds. Now open your eyes.

Now make chicken wings.

Now raise your arms in the air 10 times.

Now bend and straighten your elbows 10 times.

Now tap your finger on your knee like this.

[To further distinguish 4 from 5 strength]

Do you have full strength in your arm, or some weakness?

Could I ask you to lift some of the objects that I see near you?

Are you able to do a push up?

### Lower Extremities

Now, please orient your camera [yourself] so that I can see your knees and feet in the picture.

Please raise your right knee off the chair. Now straighten your leg. (hold each for 10 seconds)

Please raise your left knee off the chair. Now straighten your leg. (hold each for 10 seconds)

Now tap your toes like you are listening to music.

[CEREBELLAR] Now take your right heel, touch your left knee with it, then rub your heel down your shin. Now rub it back up to your knee again.

Now please do the same movement with your left heel and your right knee.

[To distinguish 4/5 strength – also include heel and toe walk (in Gait)]

Please fold your arms on your chest and stand up from your chair. Do you feel comfortable standing up from the chair? Was that harder than you thought it would be?

Could you stand up and hop on one foot and then the other (10 times on each side)?

Are you still doing OK or do you need to take a break?

### SENSATION

Now we are going to test your sensation.

Please take out the tools that we are going to use to check your sensation.

Let's take the cotton swab, the tuning fork, the alcohol swab, and the pin.

#### Lower extremities

Take the cotton swab and lightly touch your right big toe. Does this feel the same on the other side? [...]

Now break the cotton swab and let's try the sharp side. Does it feel sharp on your right big toe? On your left big toe? [...]

Now let's take your tuning fork. Rub it with the alcohol swab, which will make it feel colder.

Now touch the fork to your right big toe. Does it feel cold? Now turn to the fork over and test the left [...]

Now let's check for that buzzing sensation with the tuning fork. You are going to get it to vibrate, then place the tip of the stem on your big toe [model joint]. Do you feel the buzzing in your big toe? [...] Now let's check on the left. [...]

Upper extremities.

OK now we are going to move the camera back to your face and arms.

We are going to repeat the same tests of sensation in your hands.

Could you please roll up your shirt sleeves a little bit so I can see your hands and wrists?

Take the cotton swab and lightly touch your right index finger. Does this feel the same on the other side? [...]

Now let's try the sharp side. Does it feel sharp on your right hand? On your left hand? [...]

Now let's take your tuning fork. Rub it with the alcohol swab, which will make it feel colder. Now touch the fork to your right index. Does it feel cold? Now turn to the fork over and test your left hand. [...]

Now let's check for that buzzing sensation with the tuning fork. You are going to get it to vibrate, then place the tip of the stem on your index finger [model joint]. Do you feel the buzzing in your finger? [...] Now let's check on the left. [...]

## CEREBELLAR FUNCTIONS

OK now I am going to check your coordination.

### Head tremor and truncal tremor

Please sit quietly. Now close your eyes.

### Upper extremities

Now let's have you sit sideways and so you are just barely touching the screen. Make sure that you are seated far enough from the camera lens that you are fully straightening your arm. Hold your arm out so I can check the distance.

Now take your right index finger, touch your nose, then touch that top part of the computer screen (/other target: knee, camera, other).

Now touch your nose, then the screen again.

Now let's do the same thing with your left arm.

Now play patty cake. Now more quickly.

Now tap your fingers like me. [Direct patient to tap index finger and thumb on right side, then left side so hand is viewed at angle in front of camera]

### Lower extremities

[See 'Pyramidal' above, examination separated to limit position/camera changes.]

## AMBULATION

OK now is the last part. We are going to assess your walking.

### Ambulation Index

Can you walk as far as you'd like to or do you need to rest at a certain point?

[If limited] Let's say we are starting at your home. What is your home address? To what landmark from your home can you walk before needing to stop and rest?

- Determine distance <https://www.google.com/maps>

- Convert to meters <http://www.metric-conversions.org/length/miles-to-meters-table.htm>

### Gait

Now we are going to watch you walk.

Please angle the camera towards your feet

Go ahead and put your hand on the wall. Do you feel comfortable walking on your own?

Please walk to the far end of the room, then walk back towards the camera.

[If stable] Please walk back to the far end of the room.

Come back towards me on your toes.

Now on your heels.

Now walk in a straight line like you are on a tight rope.

Do you feel stable? OK, now stand arm's reach from your wall if you need it, but not touching it. Now please close your eyes.

### OTHER

OK. Thank you.

The formal evaluation is finished, but I wanted to make sure that we had covered all the aspects of your function that are affected by your MS. Is there anything that we did not get to during the examination today?