

## Telehealth Neurology Presenting

### 1. SCOPE

- 1.1. MCHS Telepresenter
- 1.2. Facilities and departments included in the scope listed above are further defined in the [Scope Definition Resource Guide](#) if not specifically outlined above.

### 2. DEFINITIONS & EXPLANATIONS OF TERMS

#### 2.1. Abbreviations

- MCHS – Marshfield Clinic Health System
- RN – Registered Nurse
- MA – Medical Assistant
- LPN – Licensed Practical Nurse

#### 2.2. Definitions

- Muscular atrophy: refers to a loss of muscle bulk (wasting) and results from diseases of the peripheral nervous system such as diabetic neuropathy, as well as diseases of the muscles.
- Muscle Tone: When a normal muscle with an intact nerve supply is relaxed voluntarily; it maintains a slight residual tension. Decreased resistance suggests disease of the peripheral nervous system, cerebellar disease, or the acute stage of spinal cord injury.
- Weakness: impaired strength.
- Paralysis: absence of strength.
- Ataxia: a gait that lacks coordination with instability.
- Polycom: refers to the use of clinical video systems.
- Resting Tremors: Resting tremors are most prominent at rest and may decrease or disappear with voluntary movement. Illustrated by relatively slow, fine, pill-rolling tremor of Parkinsonism, about 5 per second.
- Postural (Action) Tremors: Postural tremors appear when the affected part is actively maintaining a posture and worsen somewhat with intention.
- Supinate: To turn the forearm or hand so that the palm faces upward
- Pronate: The act of turning the hand so that the palm faces downward or backwards
- Intention Tremors: Absent at rest. Appear with activity and often increase as the target is neared. Causes include disorders of the cerebellar pathways, as in multiple sclerosis.

• Reflexes:

- ◊ Biceps Tendon- located in the front of the bend of the elbow; located in the right antecubital fossa. The biceps reflex is elicited by placing your thumb on the biceps tendon and striking your thumb with the reflex hammer and observing the arm movement
- ◊ Triceps Tendon- located just above the elbow bend (funny bone), the triceps reflex is measured by striking the triceps tendon directly with the hammer while holding the patient's arm with your other hand.
- ◊ Brachioradialis- located along the thumb side of the wrist, about 2-3 inches above the round bone at the bend of the wrist. The brachioradialis reflex is observed by striking the brachioradialis tendon directly with the hammer when the patient's arm is resting. Strike the tendon roughly 2-3 inches above the wrist. This normally causes contraction of the brachioradialis and hence flexion of the elbow.
- ◊ Patellar/Quadriceps Reflex- A reflex contraction of the quadriceps muscle resulting in a sudden involuntary extension of the leg, produced by a sharp tap to the tendon below the patella.
- ◊ Achilles Reflex- A reflex bending of the foot resulting from contraction of the calf muscles when the Achilles tendon is sharply struck.
- ◊ Babinski- a reflex extension of the great toe with flexion of the other toes, evoked by stroking the sole of the foot: normal in infants but otherwise denoting central nervous system damage.
- ◊ Ankle Clonus- a reflex elicited by quick vigorous dorsiflexion of the foot while the knee is held in a flexed position resulting in repeated clonic movement of the foot as long as it is maintained in dorsiflexion. Feel for oscillations between flexion and extension of the foot indicating clonus
- ◊ Hoffman's Sign- elicited by holding the patient's middle finger between the examiner's thumb and index finger. Ask the patient to relax their fingers completely. Once the patient is relaxed, using your thumbnail press down on the patient's fingernail and move downward until your nail "clicks" over the end of the patient's nail. Normally, nothing occurs. A positive Hoffman's response is when the other fingers flex transiently after the "click".
- Telepresenter – a RN, LPN or MA who is trained to use technology, such as digital stethoscope, otoscope, examination camera, etc, to facilitate comprehensive exams under provider guidance

### 3. PROCEDURE BODY

All clinical staff responsible for the presenting of patients to Neurology Services or any provider who may need a component of a neurological physical exam shall be proficient in providing neurological exam data via Telehealth technologies while working within scope of practice.

#### 3.1. Pre-Consult Preparation

- See [Core Telepresenting Procedure](#)
- Adult Vital signs: Be sure to select the appropriate provider and the necessary package that coincides with the visit
  - Weight
  - Blood pressure
  - Pulse
- Pediatric Vital Signs: Be sure to select the appropriate provider and the necessary package that coincides with the visit.
  - All weights/lengths/heights should be done without shoes/braces
  - Age 0-35 months
    - Weight (kg)
    - Length (cm)
    - Head circumference (cm)
    - Handedness after 12 months
  - Age 3-5
    - Weight (Kg)
    - Height (cm)
    - Head Circumference (cm)
    - Handedness
  - Age 6 and over
    - Weight (kg)
    - Height (cm)
    - Pulse
    - Blood Pressure
    - Handedness
- Provider requested patient forms can be found under the provider's worklist in Document Manager. Patient should complete these forms which should then be saved back to the provider's worklist when complete.

3.2. Provider Directed Physical Exam:

- a. **Mouth:** assist provider to view the posterior aspect and structures of the oral cavity using the fiber optic otoscope and/or hand held camera
- b. **Facial assessment (Cranial Nerve VII):** The physician will inspect the face, both at rest and during conversation, noting any asymmetry, and observing any tics or other abnormal movements. The physician may instruct the patient to raise eyebrows, frown, and smile, show both upper and lower teeth and/or puff out both cheeks. Be prepared to use the room camera and/or hand held camera to zoom in on the face.
- c. **Involuntary Movements:** The provider will assess for involuntary movements such as tremors or tics, noting their location, quality, rate, rhythm, and amplitude. Be prepared to use the camera and/or hand held camera to zoom in on the action of the finite motor responses or pan out for room view to show entire patient movement.
- d. **Motor System:** As the provider assesses the motor system, he/she will focus on body position, involuntary movements, characteristics of the muscles (bulk, tone, and strength), and coordination. With the hand held camera or room camera zoom in on neuromuscular activity.
- e. **Body position:** Provider will observe the patient's body position during movement and at rest.
- f. **Muscle bulk:** Provider compares the size and contours of muscles, assessing if the muscles look flat or concave. Provider may pay particular attention to hands, shoulder, and thighs when assessing for atrophy.
- g. **Muscle tone:** Feel the patient's muscle resistance to passive stretch
  - Persuade the patient to relax
  - Take one hand with yours and while supporting the elbow, flex and extend the patient's fingers, wrist, and elbow.
  - Put the shoulder through moderate range of motion.
- h. **Muscle Strength:**
  - The provider will ask the patient to move actively against the clinician's resistance or to resist movement.
  - The telepresenter will assess muscle strength according to the following scale:
    - 0= No muscular contraction detected
    - 1= A barely detectable flicker or trace of contraction
    - 2= Active movement of the body part with gravity eliminated
    - 3= Active movement against gravity
    - 4= Active movement against gravity and some resistance
    - 5= Active movement against full resistance without evident fatigue. This is normal muscle strength.
- i. **Rapid Alternating Movements:**

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- The provider will instruct the patient to place hands on thighs and supinate and pronate both hands rapidly.
- The telehealth presenter will demonstrate activity for patient if needed.
- The provider will observe the speed, rhythm, and smoothness of the movements

j. **Point-to-Point Movements:**

- Ask the patient to touch their nose with the tip of their index finger and then touch your finger tip. Hold your finger just within the patient's arm's reach (you should make the patient use her arm outstretched).
- Ask patient to repeat the movement between nose and target finger as quickly as possible
- Make the test more sensitive by changing the position of your target finger. Timing is crucial – move your finger just as the patient's finger is about to leave her nose, otherwise you will induce a false-positive finger-to-nose ataxia.

k. **Gait Assessment:**

- Provider will instruct the patient to walk across the room or down the hall, then turn and come back observing posture, balance, the arms swinging at the sides, and turns are accomplished smoothly.
- Provider may request patient to tandem walk (heel-to-toe) revealing an ataxia not previously observed.

l. **Distal muscle weakness assessment:**

- Provider will instruct the patient to walk on his or her toes and heels.

m. **Proximal muscle weakness assessment:**

- Provider will instruct patient to rise from a sitting position without arm support or stepping up on a sturdy stool.

n. **Stance:** The provider may perform the Romberg test and pronator drift concurrently:

- To perform the Romberg Test, the provider will instruct the patient to first stand with feet together and eyes open and then close both eyes for 20-30 seconds without support.
- The provider will assess the patient's ability to maintain an upright posture. Normally only minimal swaying occurs.
- To test for pronator drift; the provider will instruct patient to stand for 20-30 seconds with both arms straight forward, palms up and eyes closed. A person who cannot stand may be tested for a pronator drift in a sitting position. Be prepared to catch patient if they begin to significantly drift off balance.

o. **Chair Rising:** Be prepared to use the room camera and/or hand held camera.

- Have the patient sit in a chair without arms.

- The provider will ask the patient to stand without the using their arms.
- Patient may be unstable. The telepresenter should stand close to patient to assure patient safety. The provider will look at the legs for strength and balance.
- p. **Posture and postural stability:** Be prepared to use the room camera and/or hand held camera.
  - The provider will assess the patient's posture.
- q. **Gait and body bradykinesia:** Be prepared to use the room camera and/or hand held camera.
  - The provider assessing gait is looking for decreased or non-existent arm swing, short shuffling steps (festination), difficulty in negotiating turns, and sudden freezing spells (inability to take the next step).
- r. **Peripheral Neuropathy:** Vibration sense is often the first sensation to be lost in a peripheral neuropathy.
  - With a tuning fork, tap on the heel of your hand and place it firmly over a distal interphalangeal joint of the patient's finger, then over the interphalangeal joint of the big toe.
  - Ask the patient to tell you when the vibration stops and record the number on the tuning fork. If vibration sense is impaired, proceed to more proximal bony prominences (wrist, elbow, medial malleolus, and patella).
- s. **Deep Tendon Reflexes:** See link for [reflex assessment guide](#)
  - Encourage the patient to relax.
  - Position the limbs properly and symmetrically. Hold the reflex hammer loosely between your thumb and index finger so that it swings freely in an arc within the limits set by your palm and other fingers.
  - With wrist relaxed, strike the tendon briskly using a rapid wrist movement. Reflex response depends partly on the force of your stimulus. Compare the response of one side with the other.
  - The telepresenter will grade the reflexes based on the following scale:
    - 4+= Very brisk, hyperactive with clonus (spasmodic alternation of muscular contraction and relaxation).
    - 3+= Brisker than average; possibly but not necessarily indicative of disease.
    - 2+= Average; normal
    - 1+= Somewhat diminished; low normal
    - 0= No response/ absent
- t. **Hyperventilation Test for Absence Seizures**
  - Patient, Parent, or Telepresenter will hold Kleenex approximately 12 inches

from patient's face

- Provider will then instruct patient to blow repetitively for 2 minutes (or less if seizure starts) at the Kleenex to evaluate if hyperventilation will initiate an absence seizure

3.2. Post Physical Exam

- See [Core Telepresenting Procedure](#)

3.3. Post Considerations

- See [Core Telepresenting Procedure](#)

Live

PROCEDURE

#### 4. ADDITIONAL RESOURCES

4.1. References:

- Graham, D.; Nicol, F.; Robertson, C.; Britton, R.; and Danielson, E. Macleod's Clinical Examination. 13th ed. Elsevier Ltd; 2013.  
<https://www.clinicalkey.com/#!/browse/book/3-s2.0-C20110697327>. Accessed September 23, 2016

4.2. Supporting documents available:

- [Reflex Assessment Guide](#)
- [Core Telepresenting Procedure](#)

#### 5. DOCUMENT HISTORY

Version No.	Revision Description
1.0	Conversion from Policy Handbook to Document Control. Procedure #2277.1
2.0	Removed Marshfield Clinic Logo, Updated Quick Part in Header, Reformat of Section 2. Content updated per Julianne Elsen.

#### 6. DOCUMENT PROPERTIES

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