Table e-1 Teleneurologic examination tips

<u>Note</u>: If a telepresenter (provider, nurse, or telemedicine) is with the patient, they can be asked to help assess some components of the exam (i.e. visuospatial/executive portions of MOCA, focal strength, tone, sensory exam) and help facilitate your testing.

o Mental Status: *similar to bedside evaluation*
  o Level of consciousness, orientation
  o Language examination
  o MMSE or MOCA (limited to verbal tests unless telepresenter)
Limitations: Results impacted by patient's vision and hearing.

o Cranial Nerves: *ask patient to move closer to camera*
  o II-VI: assess for pupil symmetry, extraocular movements, and nystagmus
  o VII: assess for strong eye closure and facial symmetry at rest and with smiling
  o VIII: assess gross hearing
  o IX-XII: assess tongue protrusion, clarity of speech, neck range of motion, and shoulder shrugging
Limitations: Results limited by zoom functions and resolution of camera, especially for smaller movements.

o Motor: *generally requires full view of patient from head to toe*
  o General observation: assess for abnormal movements (tremor, dystonia, chorea, dyskinesia, myoclonus), lack of spontaneous movement (bradykinesia), muscle bulk, and fasciculations
  o Strength: assess for pronator drift, standing up out of chair without using arms if able, walking on heels and toes, and squatting if safe
  o Bradykinesia: assess amplitude and decrement of repetitive finger taps, open-close fists, pronation-supination maneuvers, heel stomps, and toe taps
  o Tone: assess for clues in gait (i.e. spastic-looking gait), assess resistance to movement with telepresenter help
Limitations: Strength and tone cannot be tested by confrontation unless telepresenter.

o Coordination: *generally requires full view of patient from head to toe*
  o Finger-to-nose testing with patient pointing to camera or with collaborator help
  o Heel-to-shin testing
  o Rapid alternating movements
  o Tandem stand or tandem walking testing with telepresenter help

o Gait: *requires full view of patient standing and destination, can ask patient to walk ideally to another destination in site and back (i.e. exam room door) or towards camera and back*
  o Observe stride, stance, posture, and arm swing
  o If fall risk, only test tandem stand, tandem walking, Romberg, and postural instability with pull test if telepresenter only
Limitations: Safety in balance and dynamic testing is a concern.

o Sensory exam and DTRs: Cannot directly assess without telepresenter.

o Neurologic scales validated for use over telemedicine:
  o MMSE
  o MOCA
  o NIHSS
  o UPDRS III (without tone and retropulsion testing)