Telehealth in Rehabilitation Medicine

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VA HEALTH CARE Defining EXCELLENCE in the 21st Century

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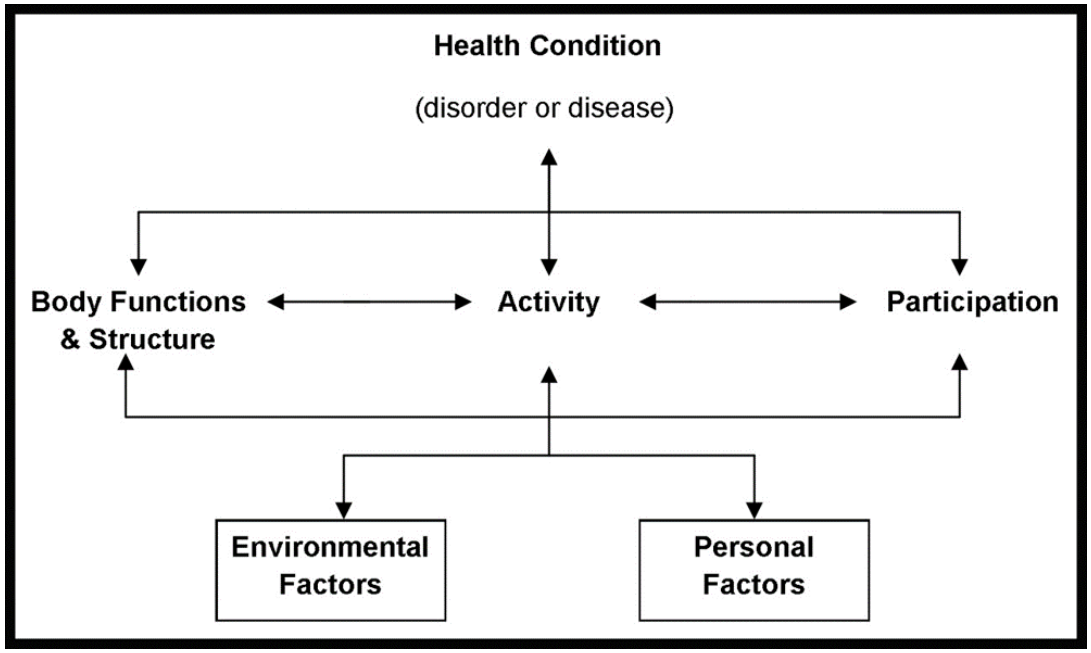
Veterans Health Administration

Physical Medicine & Rehabilitation: Background

- Specialize in non-operative management of neurological or musculoskeletal congenital or acquired conditions
- Emphasis in enhancing function, reducing disability
- 9,767 board-certified physiatrists in the United States (AAMC, 2019)

World Health Organization International Classification of Function (ICF)



Subspecialties of Rehabilitation Medicine

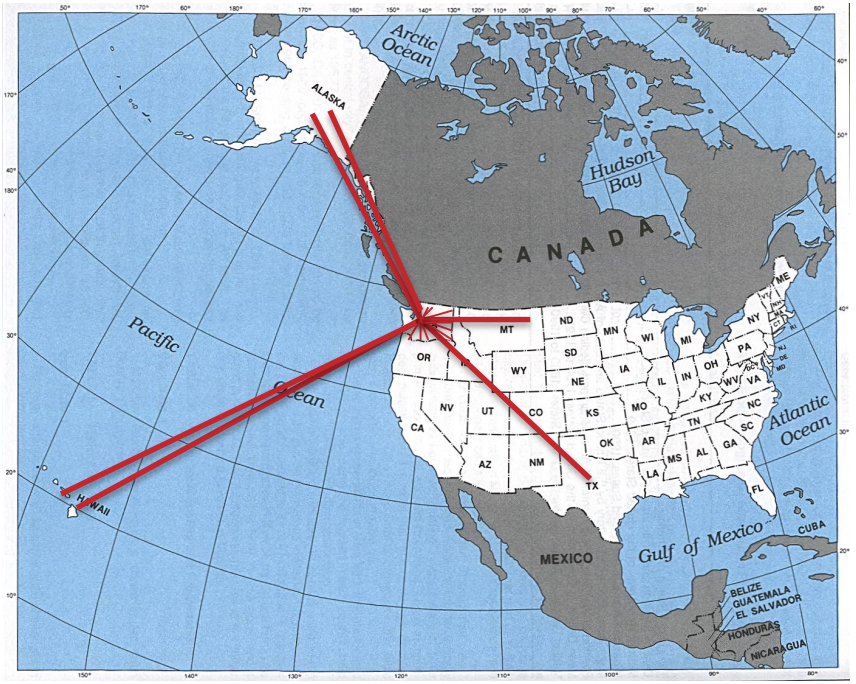
- Spinal cord injury
- Brain injury (including concussion)
- Spasticity management
- Neuromuscular disease
- Sports medicine
- Spine
- Pain medicine
- Amputation care
- Cancer rehabilitation
- Pediatric rehabilitation
- Hospice & palliative medicine

PM&R- Specific Advantages of Telehealth

- Improved access to subspecialty care for persons otherwise limited by:
  - Distance
  - Disability
- Increased caregiver participation during the visit
- Insight into home environment, social determinants of health
- Protection of potentially vulnerable population from infectious disease

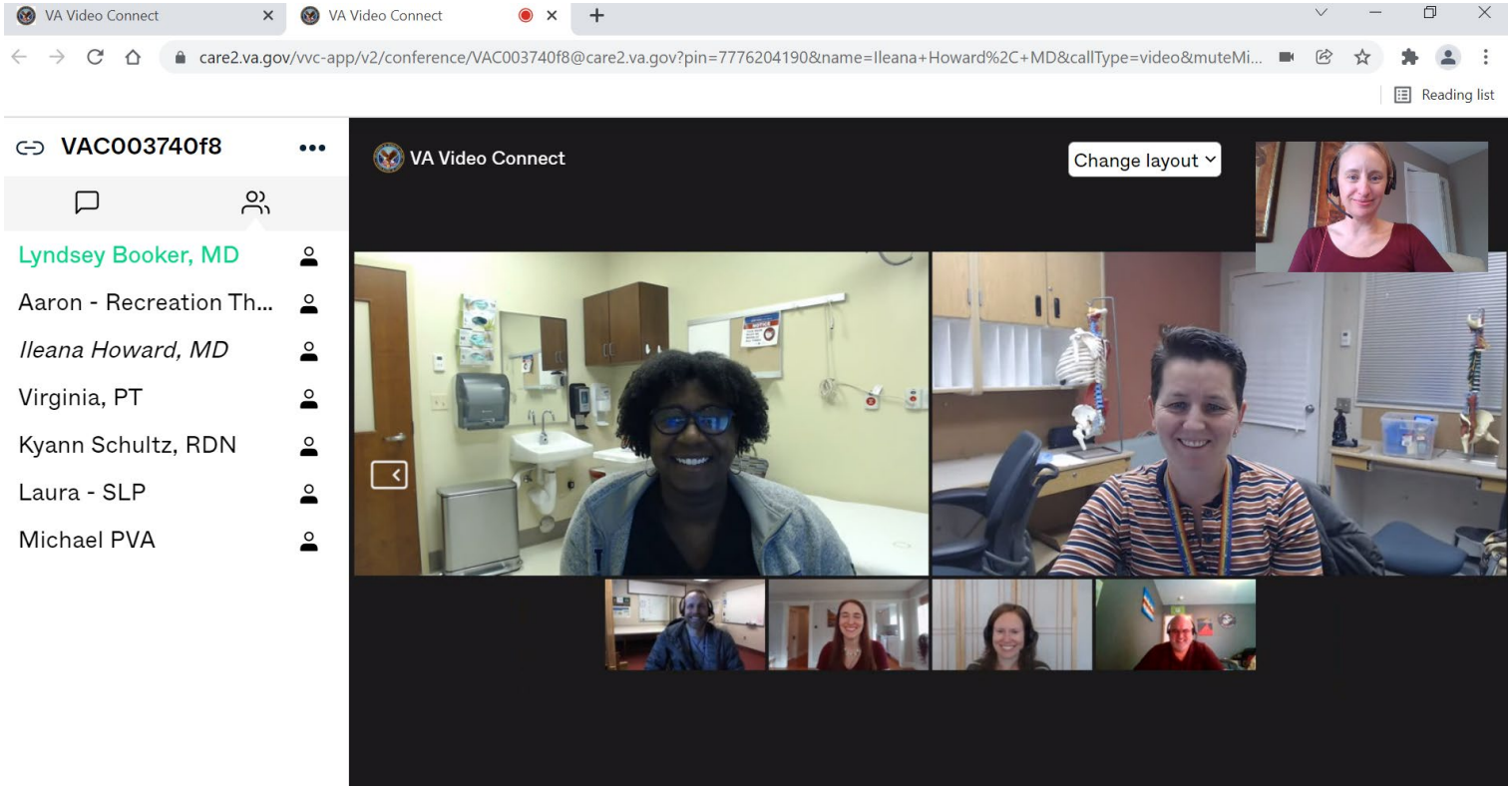
ACCESS EXAMPLE: AMYOTROPHIC LATERAL SCLEROSIS

- ALS Registry data from CDC
  - 45% persons with ALS lived >50 miles from an ALS center
  - 25% persons with ALS lived >100 miles from ALS center

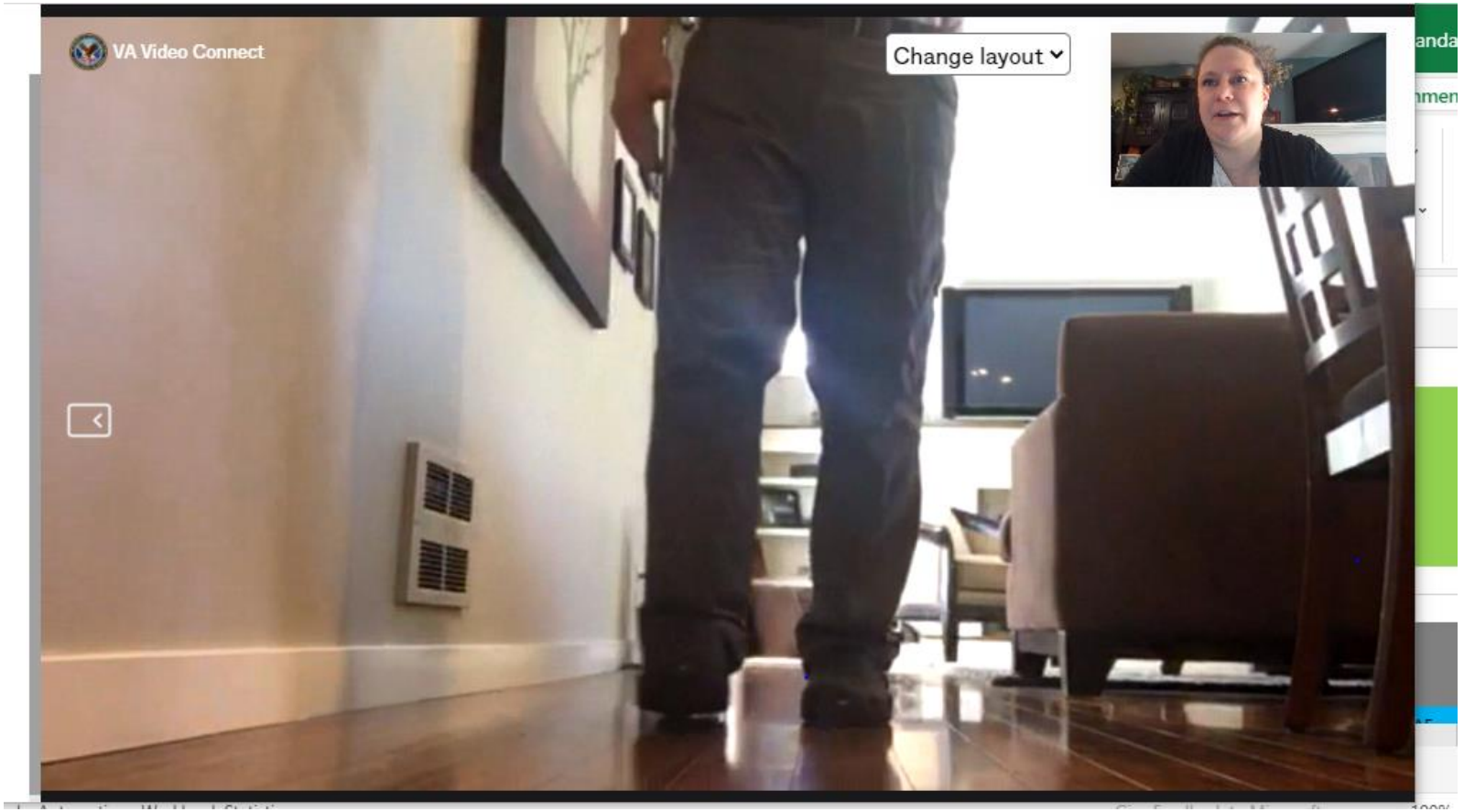


Horton, ALS-FTD, 2018

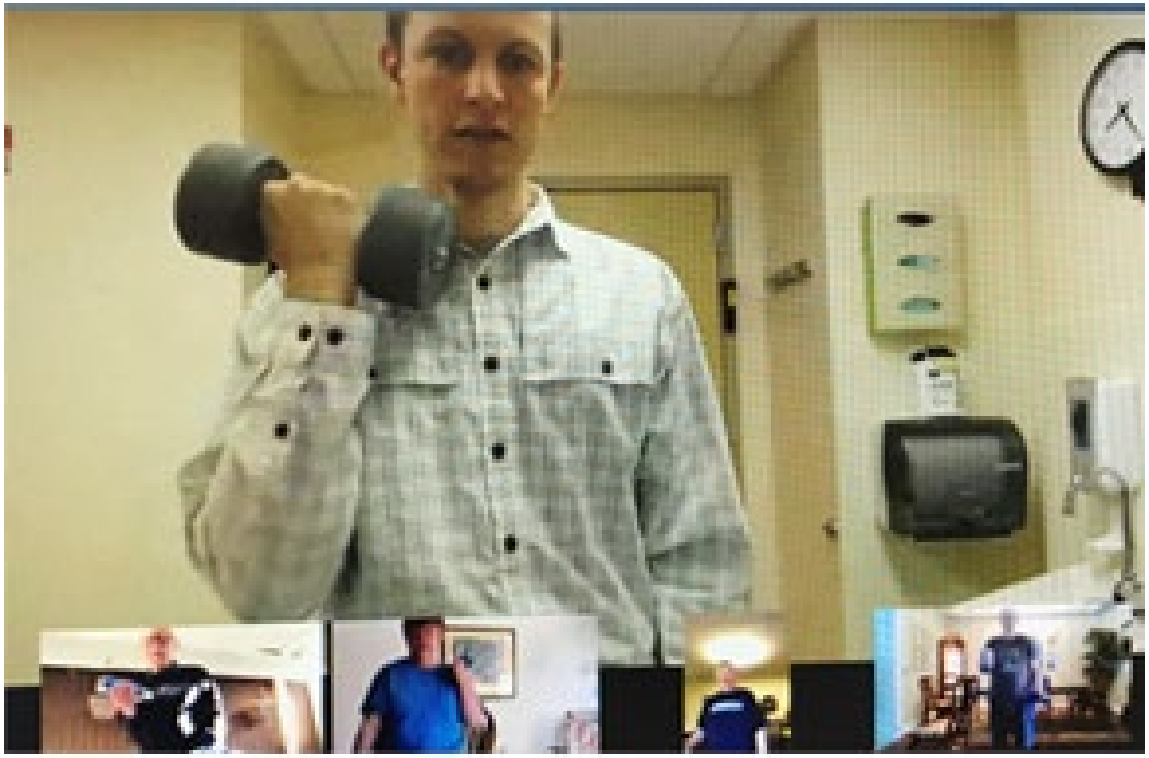
PM&R Evaluation by Telehealth: Interdisciplinary Team



PM&R Evaluation by Telehealth: Functional Evaluation



Rehabilitation Groups delivered remotely



Lessons Learned: Preparing the Patient

- Preparation for the visit:
  - Where to be for the exam (not driving, not in the grocery store)
  - Space needed for exam (seated vs. laying)
  - What to wear for exam (to expose area of concern)
  - Peripherals needed (pulse oximeter, spirometer)

Lessons Learned: Adapt or Perish

Exam Component	Potential barriers	Solutions
Inspection	May be challenges due to camera angle	Rely on assistant
Palpation		Rely on patient or assistant
Range of motion		Rely of assistant for passive range of motion
Strength	Less ability to gauge beyond antigravity +/-	Rely on assistant or props
Tone/Reflexes		Rely on assistant
Transfers/gait	Camera angle, may need assistance	Rely on assistant
Special tests	Passive movements	Substitute unassisted or assisted tests (Verduzco-Guttierez, PM&R, 2020)

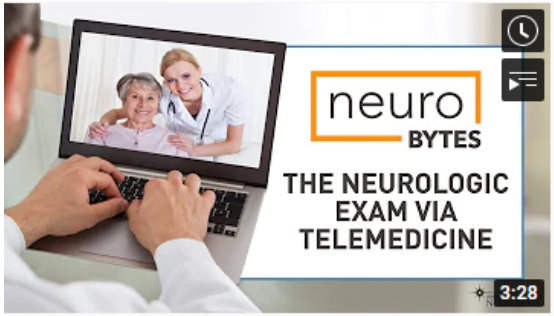
Lessons Learned: Safety

- Always confirm patient location and telephone number at the beginning of the visit
  - Emergency
  - Patient may be out of your legal practice area!

- Best to have a caregiver/family member present
  - Assist with camera angle
  - Assist with exam
  - Assists with emergencies
  - Standing by when checking balance for the first time

PM&R Evaluation by Telehealth: Neurological exam

- Neurorehabilitation
  - AAN videos on neurological exam by telehealth

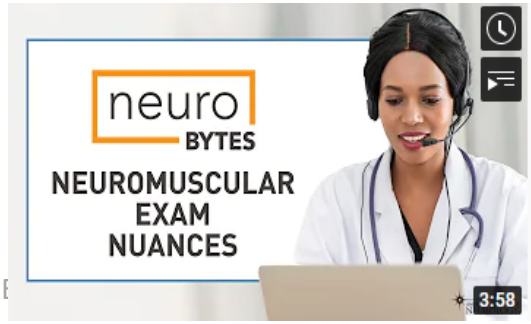


NeuroBytes: The Neurologic Exam via Telemedicine - American Academy of Neurology

10K views • 1 year ago

AANChannel

While the use of **telemedicine** for neurological patients is frequently used, the COVID-19 pandemic has led to exponential ..



NeuroBytes: Neuromuscular Exam Nuances for the Telemedicine Encounter American Academy of Neurology

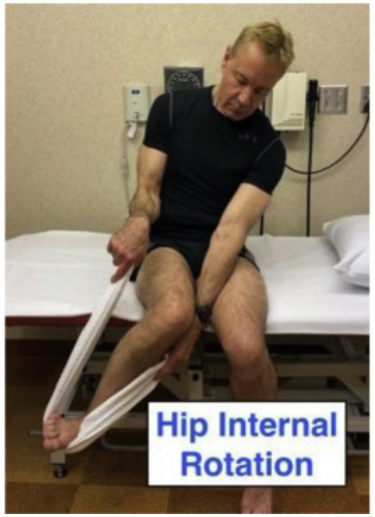
1.6K views • 1 year ago

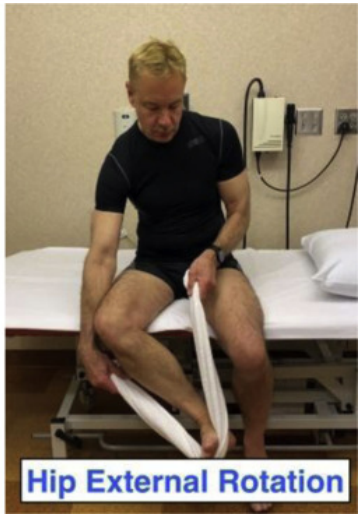
AANChannel

While **telemedicine** for certain neurological patients is frequently used, the COVID-19 pandemic has led to **an** exponential and ...

PM&R Evaluation by Telehealth: Musculoskeletal Exam

- Guides to tele-MSK exam





Lascowski, Mayo Clinic Proc., 2020 (Photographs shared with permission of the author)

Training: Telemedicine milestones for PM&R residents

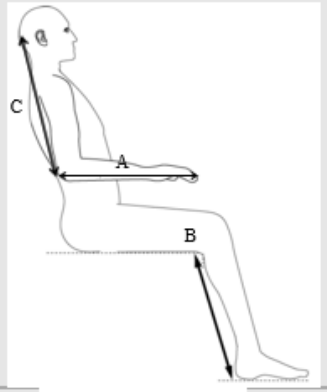
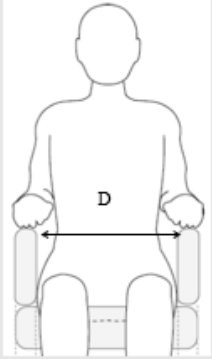
- Use of Technology-
  - troubleshooting connection issues, guiding patients to optimize exam
- Patient Interaction
  - Asks appropriate questions, recognize non-verbal communication
- Physical Exam
  - Guides patients in neuro and musculoskeletal exam
- Documentation
  - Includes telemedicine-specific documentation requirements
- Remote Delivery of Care
  - Recognizes when telehealth is appropriate, recognizes emergencies

Future of Telehealth in PM&R

- Wearable technology
  - Goniometer
  - Accelerometer
- Peripherals
  - 3-D sensors for range of motion
- Artificial intelligence
  - Comb through input of data
- Photogrammetry

Remote Measurements

Figure 2: Linear Body Measures

Body Segment	Clinical Relevance	Measurement	
A. Thigh depth	This measure is used to help specify the desired seat depth.	Linear distance from the most posterior point of the buttocks to the popliteal fossa, measured parallel to the thigh.	
B. Lower leg length	to specify the desired seat surface to foot support distance for proper adjustment and placement of the foot support	Maximum distance from the inferior surface of the thigh immediately behind the knee to the inferior surface of the heel, measured parallel to the lower leg.	
C. Scapula height	This measure can assist in determining the length, shape and height of a back support.	The distance from the sitting surface under buttocks to the inferior angle of the scapula measured parallel to the sagittal trunk line.	
D. Hip width	This measure can be used to help specify the width of the seat support and/or wheelchair frame in the area of the hips, as well as the distance between lateral pelvic or thigh supports.	The distance between the outside of the hips, including non-compressed soft tissue, measured at the level of the greater trochanters and parallel to the line between the right and left ASIS's.	

Future of Telehealth in PM&R

- More interstate/long-distance specialist care
  - Veterans E-Health and Telemedicine Support Act (VETS Act) “Anywhere to anywhere” legislation (2018)
  - Multi-state compacts for licensing
- More access to allied health & interprofessional evaluations by telehealth
- Hybrid in person and telehealth visits
  - Telepresenter/home health therapist/vendor in the home
- Hybrid models with Synchronous & Asynchronous “store & forward”
  - Wounds
  - Video clips

Summary

- Clear benefit of telehealth in Rehabilitation Medicine
- Increasing comfort and familiarity for both patient and physician
- Need for better peripherals to assist with more objective measurements
- Medicolegal, administrative, and technological barriers need to be addressed