LSVT Global® Public Webinar Series

Title: **Application of LSVT LOUD® to Advanced and Atypical Parkinson's Disease**

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Date Presented: September 25, 2019

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Application of LSVT LOUD® to Advanced and Atypical Parkinson's Disease

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PLAN FOR WEBINAR

- Logistics (handouts)
- Presentation of content
- Address your questions
- Survey

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Instructor Biographies

Cynthia Fox, PhD, CCC-SLP

Dr. Fox received her doctorate degree in Speech and Hearing Sciences from the University of Arizona, Tucson. Dr. Fox is a research associate at the National Center for Voice and Speech and Co-Founder of LSVT Global. She is an expert on rehabilitation and neuroplasticity and the role of exercise in the improvement of function consequent to neural injury and disease. Dr. Fox is among the world's experts in speech treatment for people with Parkinson disease. She has multiple publications in this area of focus, as well as numerous national and international research and clinical presentations. She is an expert on rehabilitation and neuroplasticity and the role of exercise in the improvement of function consequent to neural injury and disease.

Elizabeth Peterson, MA, CCC-SLP

Ms. Peterson received her master's degree in Speech, Language and Hearing Sciences from the University of Colorado-Boulder. She began working with Dr. Lorraine Ramig's research team while completing her master's thesis. Ms. Peterson is LSVT LOUD certified and primarily delivers LSVT LOUD in the research setting. She has worked as a research associate at the National Center for Voice and Speech-Denver and the University of Texas Health Science Center, San Antonio. Ms. Peterson is currently involved in Dr. Ramig's research investigating the short and long-term impact of LSVT LOUD on neural underpinnings of speech in Parkinson disease.

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Disclosures

- Non-financial relationships include a preference for the LSVT LOUD as a treatment technique.
- Financial Relationships include: Dr. Fox and Ms. Peterson are employees of LSVT Global and receive lecture honorarium. Dr. Fox has ownership interest in the company.

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Information to Self-Report Continuing education Activity

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Licensing requirements for CEUs differ by state. Check with your state licensing board to determine if your state accepts non-ASHA registered CEU activities.

Attendance for the full hour is required to earn a certificate.

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Learning Objectives

Upon conclusion of this webinar, participants will be able to:

1. Define advanced Parkinson disease (PD)
2. Describe atypical parkinsonism disorders
3. Discuss how LSVT LOUD can be customized to meet the needs of individuals with advanced or atypical PD
   - Speech characteristics of advanced and atypical PD
   - LSVT LOUD adaptations during treatment
   - Case studies

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Advanced PD

Modified Hoehn and Yahr Scale

STAGE 0 = No signs of disease.
STAGE 1 = Unilateral disease.
STAGE 1.5 = Unilateral plus axial involvement.
STAGE 2 = Bilateral disease, without impairment of balance.
STAGE 2.5 = Mild bilateral disease, with recovery on pull test.
STAGE 3 = Mild to moderate bilateral disease; some postural instability; physically independent.
STAGE 4 = Severe disability; still able to walk or stand unassisted.
STAGE 5 = Wheelchair bound or bedridden unless aided.

Goetz CG, Poewe W, Rascol O, et al. Movement Disorder Society Task Force report on the Hoehn and Yahr staging scale: status and recommendations. Mov Disord. 2004;19(9):1020-28.

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Advanced PD

Onset of motor complications, despite aggressive pharmacological and behavioral managements.

Motor Complications

- Wearing Off, On-Off Fluctuations
- Dyskinesias
- Drug failure response

Cognitive issues may be more prominent

- Hallucinations
- Dementia
- Memory

Giugni & Okun, 2014; Varanese et al, 2010

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Medical treatment – Advanced PD

Deep Brain Stimulation

-May be used when dyskinesias are severe due to high doses of dopaminergic drugs

-Careful cognitive screening

-Falls, FOG, balance, voice/speech may not be improved or worse

Pharmacological

-May be less effective overall

-Increased off times

-More side effects

-More or different types of pharmacological therapy may need to be added on

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Atypical Parkinsonisms

How are they different from idiopathic Parkinson disease?

- Have one of more features similar to PD (rigidity, bradykinesia, tremor, postural instability)
- Have added symptoms not seen in PD ("Parkinson's Plus")
- Disease course and underlying pathology differs from PD
- They do not respond well or in the same way to anti-Parkinson medications
- Can be difficult to distinguish from PD initially

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Most common atypical Parkinsonisms

PSP – Progressive Supranuclear Palsy

MSA – Multiple System Atrophy

CBD – Corticobasal Degeneration

LBD – Lewy Body Dementia

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Progressive Supranuclear Palsy (PSP)

Remember **"FIGS"** to help with differentiating PSP from PD

F = Frequent, sudden falls early in disease course
- Generally posteriorly

I = Ineffective Medication
- Anti-PD medications are not particularly helpful

G = Gaze Palsy
- Vertical loss (downward fist)

S = Speech & Swallow Changes

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Multi System Atrophy (MSA)

- **MSA-P (parkinsonian):** Striatonigral degeneration implies parkinsonism with some degree of cerebellar dysfunction
  - Slow, stiff movements

MSA-A (autonomic): Shy-Drager syndrome reflects a predominance of autonomic failure.
- Orthostatic hypotension, constipation, urinary incontinence

MSA-C (cerebellar): Olivopontocerebellar atrophy indicates primarily cerebellar defects with minor degrees of parkinsonism
- Ataxia, balance, coordination, gait and speech

Also common is frontal-executive dysfunction. Memory and visual spatial functions can also be impaired.

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Corticobasal Degeneration (CBD)

Remember "CIAO" to help with differentiating CBD from PD

C = Cognitive changes
- Mild early on and can progress to dementia

I = Ineffective Medication
- Anti-PD medications are not particularly helpful

A = Asymmetrical Presentation & Apraxia
- Inability to perform coordinated movements or use familiar objects

O = Odd movements or feelings
- Slowness, stiffness, shakiness, clumsiness

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Lewy Body Dementia

Progressive cognitive decline within 12 months of onset of parkinsonism

Two of the core features:
- Fluctuating cognition
- Visual hallucinations
- Parkinsonism – one core and one suggestive feature

Often with rapid progression of posture changes – generally trunk flexion and/or lateral flexion

McKeith, et al. Third report of DLB consortium. *Neurology* 2005; 65:1863

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Other general points related to atypical PD

- Can be difficult to diagnose initially
- Not managed well with medication or surgical treatment like in IPD
- Progress rapidly through the disease process
- Symptoms and presentations can vary greatly
- Compensatory strategies may need to be implemented earlier vs. restorative treatment methods used in IPD
- Begin therapy as early in the diagnosis as possible
- Patients need to be followed more regularly due to the rate of decline
- Care partner education and training are crucial
- Help patient and family establish their care team early on for better management of quickly progressing symptoms or advanced disease state

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Speech Characteristics and Speech Treatment in Advanced and Atypical PD

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Speech characteristics of advanced PD

- Imprecise articulation
- Vocal tremor
- Dysfluent speech- stuttering like (initiation difficulties, inappropriate silences)
- Hyperfluent – compulsive, effortless repetition of words and phrases, against a background of increasing rate and loudness; word and phrase repetitions tend to occur at the end of an utterance
- Increased time for processing information and responding

Darley et al, 1969a; 1969b; 1975; Logemann et al, 1978; Cherney et al., 1988; Benke, Hohenstein, Poewe, & Butterworth, 2000; Duffy, 2005

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General speech deficits in atypical PD

- Changes in speech and swallowing typically occur early, are more severe, and progress more rapidly
- Mixed dysarthria = hypokinetic++
  - Strained voice
  - Impaired fluency
  - Slow rate
  - Palilalia
- Language deficits
- Greater communication deficits: initiation of speech, managing conversations, turn taking, shifting topics

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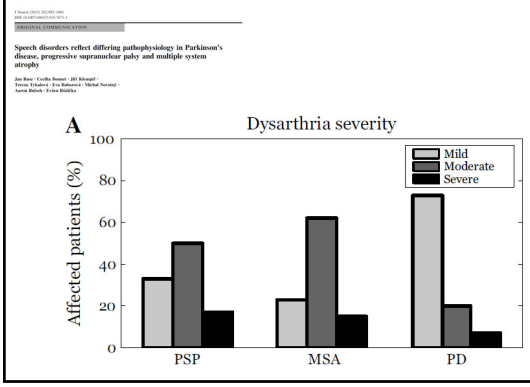
Speech characteristics may be key in differential diagnosis of atypical PD.



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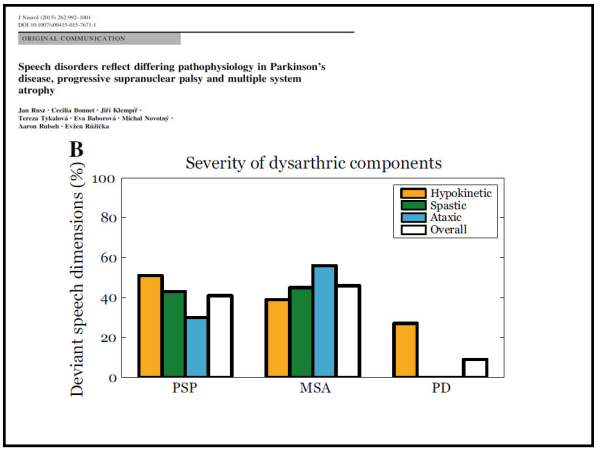

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Speech characteristics of PSP vs. MSA

(Rusz et al., 2015)

PSP

- Increased dysfluency
- Decreased, slow rate
- Inappropriate silences
- Deficits in vowel articulation
- Harsh voice quality

MSA

- Pitch fluctuations
- Excess intensity variations
- Prolonged phonemes
- Vocal tremor
- Strain-strangled voice quality

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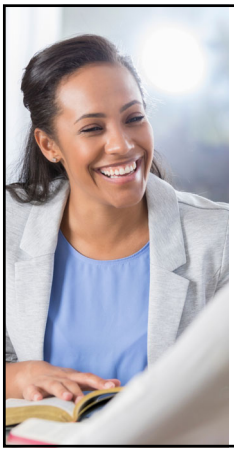

Speech rehab focus in advanced and atypical PD

- Maintain and improve physical capacity
  - ➢ Loudness, voice quality, intelligibility, rate
- Maintain vital functions: swallowing safely
- Functional communication is key
- Use of external cueing, devices, augmentative devices
- Address cognitive and/or language deficits

Treat Early and Often!

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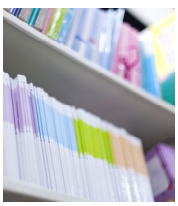
Speech treatment research in advanced and atypical PD: Very Limited

- LSVT LOUD in PSP, MSA case series: Countryman, Ramig and Pawlas, 1994
- LSVT LOUD in PSP: Sale et al., 2015
- LSVT LOUD generalizability to advanced PD: Ramig et al., 2018:

"The ability to generalize these findings to patients with more advanced disease is supported by our finding of no significant associations between time post diagnosis (ranging 0–31 years) and within-group treatment related changes in SPL through 7 months (P = 0.30). This suggests that regardless of disease severity, participants showed similar treatment-related improvements within-group."



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Case Study #1

- 67 y/o male
- Diagnosis at time seen: advanced PD, Stage V Hoehn & Yahr
  - 17 years post-diagnosis
- Main Voice/Speech symptoms
  - Significantly reduced volume, imprecise articulation, accelerate /rapid rate of speech
  - Overall speech impairment rating: severe
- Participant in research study

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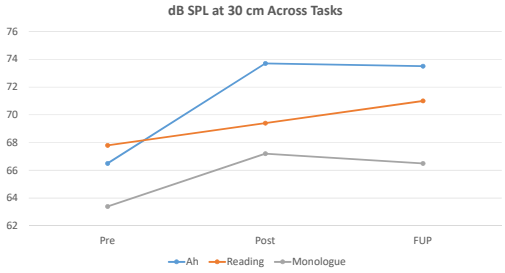
Case Study #1 Outcome data



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LSVT LOUD Adaptations for Advanced or Atypical PD

Adaptations ARE:

- Increasing repetitions for shorter durations
- Allowing greater rest breaks
- Persisting at phrase/sentence levels of the hierarchy
- Utilizing family and support system for carryover
- Altering materials for visual/language impairments
- Adding additional sessions and more frequent follow-ups

Adaptations are NOT:

- Altering core protocol
- Delivering fewer or shorter sessions
- Changing treatment tasks
- Eliminating core elements (target, mode, calibration)

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Adaptations: Maximum duration sustained vowel phonation

- May need to spend more time with clinician shaping and modeling good voice quality during “ah”
- Durations may be short requiring more repetitions
- Longer rest periods between repetitions
- Prolonged need for modeling and shaping
- Using the “ah” frequently for resetting vocal loudness

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Adaptations: Maximum fundamental frequency range

- Pitch range may be very reduced
- Greater tendency to NOT start at max “ah” – may need to reset the exercise more frequently
- More extensive and prolonged need for clinician modeling and shaping

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Adaptations: Functional Phrases

- May need family input to create the phrases
- If family is used, it's important that phrases truly are what patients say every day (not what the spouse wants them to say)
- May utilize increased repetitions (more than the 5 times) as these will be KEY functional outcomes for patients
- May increase the number of functional phrases and use some as hierarchy practice

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Adaptations: Speech Hierarchy

- It's important maintain salient practice (use family as needed for input)
- Continue to include both structured tasks and spontaneous speech
- Allow sufficient time for slower cognitive processing and response
- Use motor start of the "ah" as needed to rev up the system

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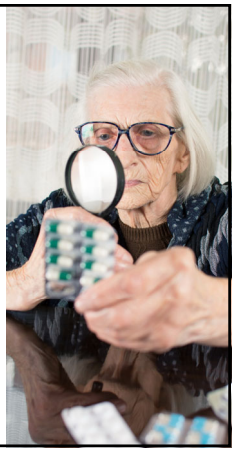
What about patients who can't see/read?

- May occur due to language disorders, visual impairments, illiteracy, or cognitive decline
- Goal: translate reading practice during speech hierarchy into speaking practice without the need for written words
- Match the output in terms of length of utterance to the level of hierarchy (words, phrases, sentences, paragraph, conversation)
- If vision is intact – use pictures
- Maintain intensity of motor practice



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What about clients who can't see/read?

- Words: clients can generate lists based on topics provided by clinician, finish short sentences with a single word or short phrase answer, name opposites to items listed by clinician.
- Sentences: clinician provides a word and the client describes or comments in one sentence. These could be words that are in a topic area that is salient to the client (e.g., food).
- Paragraphs: in this 3rd week level of the hierarchy, clinician should stimulate longer speech, but keep it somewhat constrained. Clinician can ask questions about the client's family, work, hobbies, or sports and ask them to respond for 1 minute, 2 minutes, etc.
- Conversation: this would be the same as with a client who did not have impaired vision.

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Adaptations: Calibration

- Can be more challenging, but remains as important
- Education can be more difficult with cognitive impairments
- Differences played back on audio may not be as easily perceived
- Benefits/rewards of improved communication may be harder to establish
- Critical to find those emotionally salient opportunities so clients feel the reward of improved communication

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Adaptations: General

- Will likely need support from family, caregivers, nursing staff, etc.
- Clinician may include family/caregiver perceptual ratings to help determine functional impact
- Clinician should carefully train others on how to cue (helpful not hurtful to treatment goals)
- Islands of lucidity – clinician should capitalize on them; also may treat patients at times when they may not be "present"
- Motor fluctuations: On/off and dyskinesias
- Clinician should acknowledge a client's fatigue within treatment sessions (e.g., validate; longer rest periods)

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Adaptations: Treatment Location

- Cognition
- Distractibility
- Home Environment vs. clinic setting
- Transportation issues
- Add teleheath sessions to reduce fatigue from traveling

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Adaptations: Cognitive Concerns

- Complete treatment in a room separate from others and with as few distractions as possible
- Begin treatment without observers
- Clinician should model exercises as he/she wants the client to perform them
- Clinician can use environmental cues
- Repetition, repetition, repetition!!!
- Clinician should keep focus simple, even when other communication deficits are present
- Likely will have to treat beyond the 4 weeks
- Once client is able to follow clinician modeling, the clinician should educate care partners so they can be a "coach"

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Adaptations: LSVT LOUD - Plus

- More treatment sessions
- Frequent and continuous follow-up
- Altered auditory feedback
- Augmentative device supplementation
- Pacing – video example
- Additional cues – (e.g. "loud and fast")

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Video Example: Pacing Board

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Case Study #2

- 74 y/o bilingual female (English/Spanish)
- Diagnosis: Progressive Supranuclear Palsy, Stage IV Hoehn & Yahr
- Main Voice/Speech symptoms
  Reduced loudness, monotonicity, strained voice, low pitch, slow rate, reduced breath support, imprecise articulation

  Overall speech impairment rating: mod-severe
- Oral-mech exam
  Reduced ROM and coordination of all oral musculature; labial and mandibular strength normal

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Case Study #2

- ENT exam
  Moderate VF bowing, mod-severe FF hyperadduction
- Patient and Family Ratings based on conversation with family and aides regarding attention, memory, ability to engage in conversation, etc. and medical reports from MDs, including psychiatry
- Significantly reduced communication ability in initiating and maintaining conversation

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Case Study #2 Next Steps

1. Stimulability testing as part of eval
   - Needed max models and cues; "shout" as cue
   - Able to participate
2. One-week trial of LSVT LOUD (as if going to do all 4 weeks)! Prepared treatment materials and set up of materials to compensate for visual difficulty
   - Able to read but unable to move eyes up/down
   - To compensate for this, held and moved the materials for her
   - Used bold font that had adequate spacing between letters and lines of text
3. Good stimulability and one-week trial results, proceeded with treatment

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Case Study #2 Adaptations for Success

Adjusted goals following two weeks to account for difficulty reading at paragraph level
- Continued practice at phrase and sentence level for the remaining two weeks

At the end of the four weeks:
- Great family support, they were encouraged and didn't want to stop
- Client was continuing to make progress
  - Added 2 weeks and then another 2 weeks for a total of 4 additional weeks of therapy with excellent outcome!

Established a good homework routine (time/place/accountability) via training all daytime, evening, and weekend aides as well as husband
- Trained how to cue and model for increased loudness for functional communication in home and other environments

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Case Study #2 Maintenance

Lifelong Relationship with More Frequent and Continued Check-In Important:
- Took a one-month break with daily HEP in place
- Checked in at one month - was doing well
- At time of 2nd month follow-up, patient had declined a bit
- Reassessed and recommended 2x/week for 2 weeks which the family ended up continuing with for some time
- Another break with a medical decline, resumed to:
  - Preserve remaining function
  - Develop AAC
  - Monitor/address swallowing for PO, G-tube was placed

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Case Study #2 Lessons Learned

- **Treatment can make a huge functional difference**!
  - Client was able to incorporate techniques from LSVT LOUD into her spontaneous speech post-treatment
  - Husband reported client was able to use a normally loud voice with clear speech when speaking with husband, doctors, aides, and with sister in Spain via telephone
  - Following 8 weeks - husband stated, "She had a nuanced conversation with her sister in Spain on the phone!"
- **Continued homework and follow-up practice is important**
- **Important** to be in contact with medical team
- **Post-tx results similar to IPD** but did not maintain out to 6 months like IPD
  - Additional weekly sessions post-intensive program helped maintain results for 1.5 years
  - Only recent decline post-hospitalization and G-tube placement
- **Don't give up!** Clients with advanced or atypical PD likely need more vs. less and can achieve wonderful gains and improvements in Quality of Life!

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Summary: Everyone should be given a chance!

- Don't discount successful treatment options just because the disease is advanced or complex
- Clinicians should do stimulabililty testing and a week of trial treatment
- The outcomes can be very impressive
- FUNCTIONAL oral communication of any kind can dramatically improve quality of life, even if supplementation is required

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Summary

- LSVT LOUD is applicable to all stages of PD and can be customized to each client's needs and treatment settings
- LSVT LOUD can increase independence, quality and safety with communication
- Restore Function! Improve Function! Maintain Function!
- Atypical and Advanced PD carry unique challenges requiring creative solutions and increased caregiver involvement

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Related Organizations

- Cure PSP www.psp.org
- MSA Coalition www.multiplesystemsatrophy.org
- The Association for Frontotemporal Degeneration www.theaftd.org
- The Lewy Body Dementia Association www.lbda.org
- The Alzheimer's Association www.alz.org

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2. Raise your hand and ask your question live.
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Upcoming Webinar

Deep Brain Stimulation and LSVT LOUD: Communication Challenges and Treatment Solutions

Wednesday, October 23, 2019

2:00 PM - 3:00 PM (EDT)

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