

Jeanne Copeland, M.S., CCC-SLP

KSHA Convention 2019

▲
**Treatment Approaches to
Support Improved Outcomes
for Chronic Aphasia**

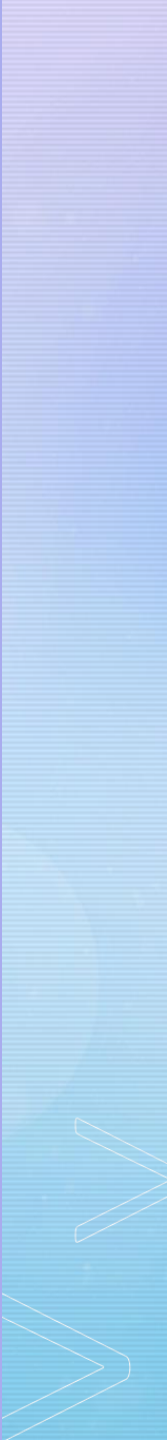


Disclosure Statement

- I receive a salary from Genesis Rehab Services in my role as Regional Clinical Director
- I have no non-financial relationships to disclose



Objectives

1. Identify evidence-based treatment approaches to support improved outcomes for individuals with chronic aphasia
 2. Explore the functional impact of including intervention for reading and writing for individuals with chronic aphasia
 3. Discuss the importance of comprehensive assessment and treatment of cognitive-communication disorders including chronic aphasia with regard to the evolving role of the speech-language pathologist in post-acute care settings
- 

Aphasia

/noun/

-Impairment of language, affecting the production or comprehension of speech and the ability to read or write.

MORE VIDEOS

What is Aphasia?

- “Aphasia is a language problem that masks a person’s inherent competence, and most dramatically affects conversational interaction (talking and understanding), as well as the ability to read and write.”

Kagan, A. & Simmons-Mackie, N. (November 2013). From My Perspective: Changing the Aphasia Narrative. *The ASHA Leader*, Vol. 18(11), 6-8. doi: 10.1044/leader.FMP.18112013.6. Retrieved from <http://leader.pubs.asha.org/article.aspx?articleid=1788363&resultClick=1>

- “Aphasia is not a disease, but a symptom of brain damage”

https://www.medicinenet.com/aphasia/article.htm#what_is_aphasia

Common Medical Diagnoses Associated with Aphasia

- Stroke
- Traumatic Brain Injury
- Brain Surgery
- Brain Tumor
- Brain Infections
- Progressive Neurological diseases (e.g., dementia)

- Incidence: 180,000 new cases of aphasia per year in the U.S.
- Prevalence: 1 million people in U.S. today are living with aphasia (1 in 250)

(National Institute on Deafness and Other Communication Disorders (NIDCD), 2015)

<https://www.asha.org/PRPSpecificTopic.aspx?folderid=8589934663§ion=Causes>

Does Aphasia affect *intelligence*?

<https://www.aphasia.org/aphasia-faqs/>

NO. A person with aphasia *may have difficulty retrieving words and names, but the person's intelligence is basically intact*. Aphasia is not like Alzheimer's disease; for people with aphasia *it is the ability to access ideas and thoughts through language - not the ideas and thoughts themselves- that is disrupted*. But because people with aphasia have difficulty communicating, others often mistakenly assume they are mentally ill or have mental retardation.

[National Aphasia Association Aphasia Awareness Poster](#)

Aphasia affects a person's ability to communicate, not their intellect. People with aphasia—and countless others—face barriers to communication on a daily basis.

But...can Aphasia occur in combination with cognitive-communication impairments?



Post-Stroke Cognitive Disorders: Key Statistics

Evidence-Based Review of Stroke Rehabilitation, Chapter 12

- Up to 2/3 of people who have a stroke experience cognitive impairment or decline
- 30% of all stroke survivors progress to a dementia syndrome
- Risk for developing dementia may be as much as 10 times greater for those who have had a stroke
- 10% of people who have a stroke may have existing dementia
- An additional 10% may develop dementia after their first stroke
- More than 33% may develop dementia after multiple strokes

Post-Stroke Cognitive Disorders: Definitions

Evidence-Based Review of Stroke Rehabilitation, Chapter 12

- Vascular Cognitive Impairment (VCI): cognitive deficits due to the impact of cerebrovascular disease, including stroke
- Three types of VCI:

Table 12.1.1 Vascular Cognitive Impairment

Category	Definition
Vascular Cognitive Impairment (VCI)	VCI without dementia, and mild VCI
Vascular Dementia	Deficits of executive control resulting in loss of function for instrumental activities of daily living
Mixed Dementia	Alzheimer's worsened by stroke; equivalent to pre-stroke dementia

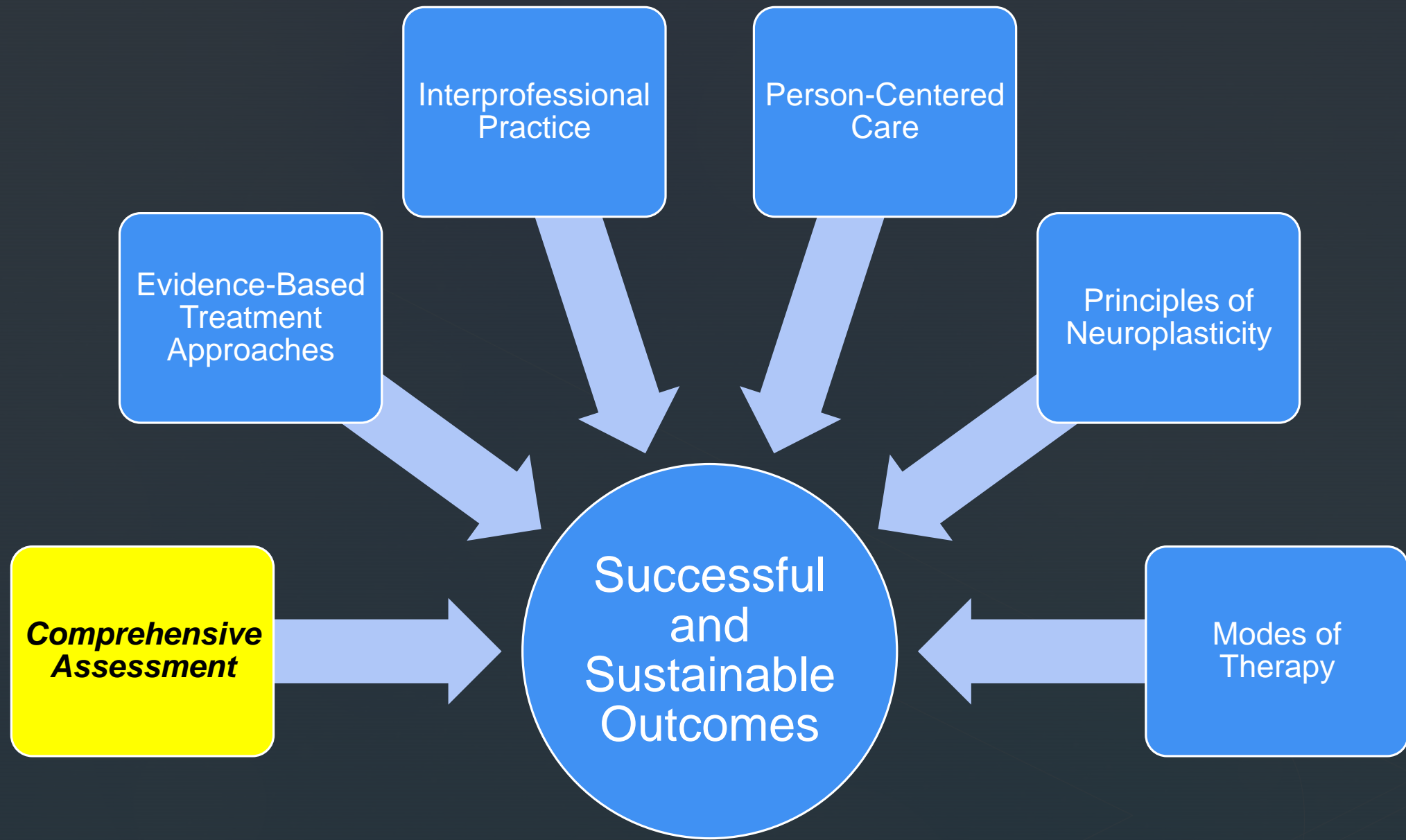
Adapted from Roman et al. (2004)

Post-Stroke Cognitive Disorders: Clinical Presentation

Evidence-Based Review of Stroke Rehabilitation, Chapter 12

Impairments of...

Executive Function	Processing speed	Initiation
Planning	Organizing	Sequencing
Attention	Goal Formulation	Abstraction



Comprehensive Aphasia Assessment: General Principles (ASHA)

- Based on the World Health Organization's (WHO) *International Classification of Functioning, Disability and Health* (ICF) framework
- Person-Centered (e.g., Life Participation Approach to Aphasia, or LPAA)
- Static (CLOF) or dynamic (ongoing therapeutic assessment)
- Standardized and non-standardized tools and data sources

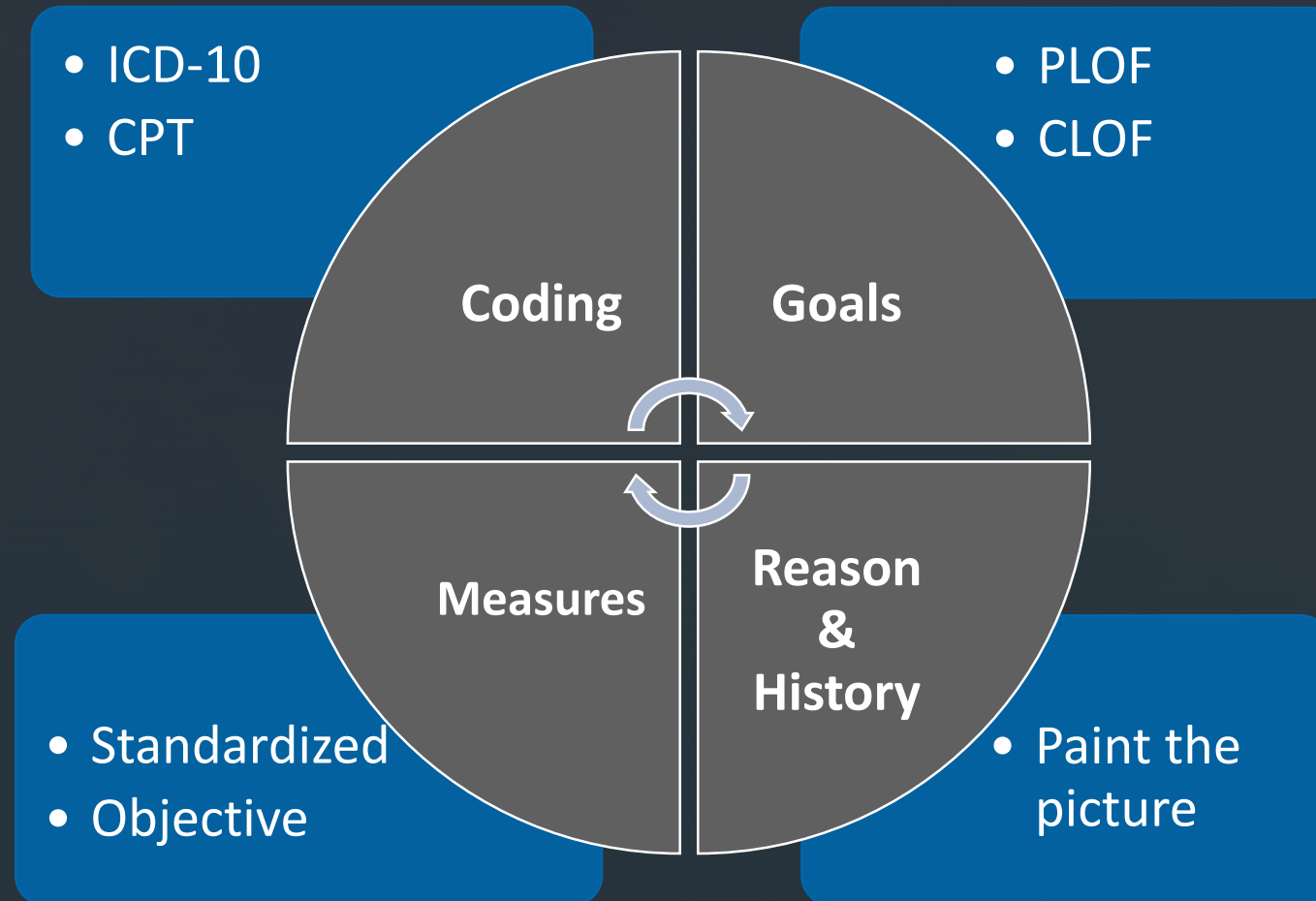
Comprehensive Aphasia Assessment: Evaluation Components (ASHA)

- Case History
- Self-Report
- Oral-Motor Examination
- Language
 - May include assessment for apraxia

Note the **absence of cognitive-communication assessment*

*(ASHA message: Aphasia **≠** Cognitive-Communication Impairment)*

Comprehensive Assessment: Documentation





SNF Settings: Data Snapshot

- Random sampling of 10 SLP evaluations (92523) at 10 centers
- Open charts as of 9/11/19
- 100% of charts assessed cognitive-communication
- 50% indicated “adequate” or “DNT” Receptive / Expressive language
- Of the 5 charts where language was assessed, 2/5 did not include language goals

Cog-Comm and Language assessed, 3/5 included language goals

Medical diagnosis	Treatment diagnosis	Standardized Assessment	Receptive/Expressive Language
R MCA CVA, previous CVA	I69.391, R13.12, R48.9	BCAT-SF: 1/21 (“dementia” range)	Receptive: Severe Expressive: Severe Goals yes
Alzheimer’s	R41.841	SLUMS 1 – 19 (“dementia” range)	Receptive: mild Expressive: mild Goals yes
Alzheimer’s	R41.841	BCAT-SF 8/21 (“dementia” range) GDS Stage 5	Receptive: mild-mod Expressive: mild Goals yes
Parkinson’s	R13.12, R41.841	BCAT 25 – 33 (“mild dementia” range)	Receptive: mild-mod, Expressive: adequate No language goals
Alzheimer’s	R41.841	Portions of RIPA-G, GDS Stage 6	Receptive: Severe Expressive: Severe No language goals

Language not assessed, no goals on POC

Medical diagnosis	Treatment diagnosis	Standardized Assessment	Receptive/Expressive Language
Hypoglycemia, DM	R41.841	BCAT 27/50 (“mild dementia”), VPJ 6/20	“adequate”
UTI, Previous L Thalamic CVA	R48.8	Cog-comm “severe,” unable to finish BCAT	“adequate”
Hypothyroidism, repeated falls	R48.8	BCAT 40/50 (“MCI”), SLUMS 19/30 (“dementia”)	“adequate”
Acute respiratory failure, AMS, previous CVA	R13.11, R13.13, R41.844, R48.8	Cog-comm = “severe,” unable to tolerate formal eval	DNT
Unspecified dementia	R41.841	Cog-Comm = severe GDS Stage 5	Adequate

Coding Observations

- 0/10 charts included R47.01 “Aphasia” diagnosis code
 - Assessment in 5/10 charts supported this code
 - 4/4 LCDs include R47.01 in the category of “ICD-10 Codes that Support Medical Necessity”
 - Not all Medicare Administrative Contractors (MACs) have a speech-specific LCD (e.g., WPS)
- 3/10 charts specified recent CVA or previous history of CVA
 - 1/3 charts included I69.391 “Dysphagia after cerebral infarction” but 0/3 charts included I69 aphasia code
 - *I69 codes are important for capturing accurate diagnoses that relate to reimbursement for Med A with PDPM (10/1/19)*

Aphasia and Long-Term Care Choices: Competency and Capacity

- Concepts of “Capacity” and Competency”
 - Capacity: a person’s ability to make a specific decision at a specific point in time
 - Competency (a legal term): ruling made by a judge that a person is not able to make decisions (long-term and permanent)
- To determine capacity:
 - Pt must understand information relevant to the decision,
 - Must communicate with caregivers about the decision,
 - & reason about alternatives and consequences based on goals and values (Boyle, 1997)

Communication Aid to Capacity Evaluation - CACE

- “A Communicatively Accessible Capacity Evaluation to Make Admissions Decisions”
- Specifically developed for capacity evaluators (not necessarily SLP) who are determining if patients/clients living with communication barriers have the capacity to make an admission decision to long-term care

Offered by: [The Aphasia Institute](#)

CACE Supported Communication

1. Able to understand care needs

Do you have any **health** problems?

Do you have any of these **health** problems?



Stroke



Head Injury



Heart



Diabetes



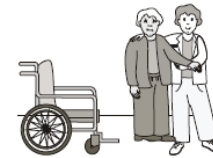
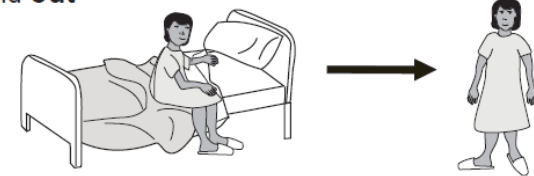
Cancer



Breathing

Do you need help with . . . ?

Getting **in** and **out**
of **bed**



Walking or getting around



Getting **dressed**



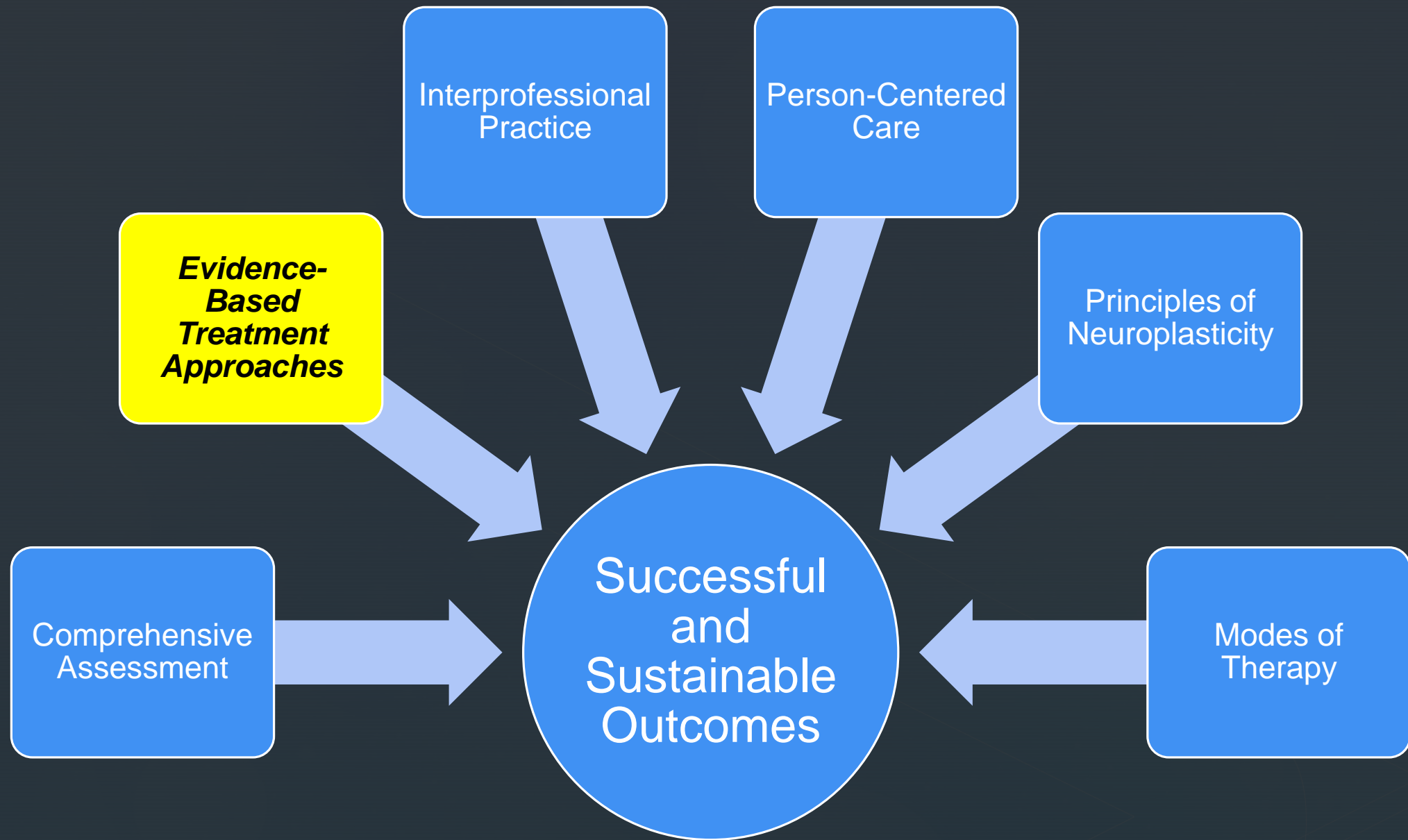
Going to the **bathroom**



Having a **shower** or **bath**

Comprehensive Assessment: *Interpretation*

- SLPs in SNF and AL environments are assessing and treating cognitive-communication skills a majority of the time, but do not always assess or treat *language*
- Following a stroke resulting in aphasia, treating clinicians should be aware and should continue to educate the person with aphasia, caregivers, and the public that aphasia does not affect intellect
- Although aphasia can make it more challenging to adequately and accurately assess cognitive-communication skills, SLPs also need to be aware of the statistics surrounding post-stroke cognitive disorders and *implications for risk of rehospitalization*



Finding the Evidence

- [ASHA Practice Portal](#) (Clinical Topic: Aphasia)
- [ASHA Aphasia Evidence Map](#) (linked from Practice Portal)
- [Evidence-Based Review of Stroke Rehabilitation](#)
- [ASHA Convention archives](#)

ASHA Convention Archives & Articles: Treatment

- *Treatments that Work for Both Dementia and Aphasia*
 - [Hinckley, Bourgeois & Hickey, ASHA Convention 2011](#)
 - [Brush, Bourgeois, Hickey, Hinckley, Hopper, & Podolsky ASHA Convention 2009](#)
 - Both contain really nice descriptions of evidence-based treatments for aphasia
- [*Grand Rounds: Addressing Swallowing and Communication in Persons with Dementia Across the Continuum of Care*](#)
- ASHA Leader: [*Not Cured...But Improved*](#) (Hopper, 2016)

REFINE BY:

Practice Area

- Assessment
- Screening
- Service Delivery
- Treatment

Bilingual Considerations

- Bilingual Considerations

Population

- Stroke
- Traumatic Brain Injury

Publication Date Range

2019 All

Selected: All Articles

- Recently Added Articles

Search All Maps



All Articles (62)

External Scientific Evidence (60)

Clinical Expertise (6)

Client Perspectives (3)

Reading Comprehension Treatment in Aphasia: A Systematic Review

SYSTEMATIC REVIEW

*Purdy, M., Coppens, P., et al. (2019).**Aphasiology, 33(6), 629-651.*

Description

This is a systematic review of peer-reviewed literature examining the research quality and outcomes of reading comprehension treatments for individuals with aphasia following stroke.

Conclusions from This Review

External Scientific Evidence

While each of the four examined approaches (oral reading treatments, strategy-based treatments, cognitive treatments and hierarchical treatment) had some success in improving reading comprehension, results were inconsistent.

The Oral Reading for Language in Aphasia program appeared to garner the most improvement in individuals with severe aphasia while the other approaches showed more success in those individuals with mild to moderate reading deficits.

“It is clear ... that substantive differences in participants, treatment protocols, and experimental rigor preclude drawing general conclusions about the effectiveness of a particular treatment for each person with aphasia” (p. 20). Additional research in this area is warranted.

[See Less](#)[Read ASHA's Article Summary](#) | [Go to Article](#)

REFINE BY:

Practice Area

- Assessment
- Screening
- Service Delivery
- Treatment

Population

- Stroke
- Traumatic Brain Injury

Treatment Approaches

- Augmentative and Alternative Communication (AAC) Treatments
- Computer-Based Treatments
- Constraint-Induced Treatment
- Conversation Partner Training
- Education/Counseling
- Melodic Intonation Therapy
- Multi-Modal Treatments

All Articles (4)

External Scientific Evidence (4)

Clinical Expertise (0)

Client Perspectives (0)

Treatment x

Writing Treatments x

Retraining Writing for Functional Purposes: A Review of the Writing Therapy Literature

SYSTEMATIC REVIEW

Thiel, L., Sage, K., et al. (2015).

Aphasiology, 29(4), 423-441.

Description

This is a systematic review of the literature regarding writing interventions for adults with acquired dysgraphia following brain injury.

Conclusions from This Review

External Scientific Evidence

There is substantial evidence on the use of impairment-based therapies (lexical and phonological) for improving the writing of treated sentences and words, and some evidence to support improvement in spelling untreated words. Limited evidence suggests impairment-based therapies might improve spontaneous writing without a transfer phase. Both impairment-based therapies and assistive technologies (e.g., predictive writing software, voice recognition), when they encourage transfer to functional writing, can improve functional writing activities like letter writing or note-taking. Most of the studies included were either single or multiple case studies, and high-quality research is needed in the area of rehabilitation for acquired dysgraphia.

[See Less](#)

[Read ASHA's Article Summary](#) | [Go to Article](#)

Example of ORLA and LPAA



Oral Reading for Language in Aphasia

“A treatment for individuals with aphasia that involves repeated practice reading sentences aloud with the clinician in an effort to improve reading comprehension via phonological and semantic reading routes. The use of connected discourse (sentences) rather than single words allows the individual to practice natural rhythm and intonation (Cherney, 1995; Cherney, Merbitz, & Grip, 1986).”

<https://www.asha.org/PRPSpecificTopic.aspx?folderid=8589934663§ion=Treatment>

“Voice My Choice”™

Bourgeois & Camp, 2013

Bourgeois, Camp, Antenucci & Fox, 2016

- Goal: utilizing visual materials to improve Nursing Assistants (NA) understanding of preferences of LTC residents with dementia
- Picture card sorting activity
- Categories included food, activities, daily living, socializing & communication, and pain
- Result: greater agreement between the individuals and NA's on preferences compared to control condition

“Over and over again I am surprised by how people with advanced Dementia can read cards and answer the questions” Professor Michelle Bourgeois, November 2015.

Voice my Choice™

Visual Cuing System

www.daughterlycare.com.au

Utilizing Reading and Writing to Enhance Outcomes for Cognitive-Communication Impairments and Aphasia

- ASHA Leader: [Not Cured...But Improved](#) (Hopper, 2016)

Written and graphic cues can make such information more permanent and accessible to people with dementia. **These formats work because they recruit spared functions, such as reading and recognition memory.** Written and graphic cues can take many forms, including memory wallets (and their larger counterparts, memory books), which University of South Florida SLP and dementia researcher Michelle Bourgeois pioneered for use with people with dementia in the early 1990s.

Memory aids can be tailored to each person's needs and interests and can be modified as their cognition and language abilities decline.

Memory Books and/or Wallets

- Download a free memory book template [here](#):

Let's Talk ... About Me

My Life in Facts and Photos

Photo from the past	Photo from the present
---------------------	------------------------

NAME: _____

2

Elliot, G. (2017)

*Index Cards, Reminders, & Memo Boards Bourgeois, 2007

- Deliver a clear message
 - Large print
 - Keep it short, simple and positive
- Personalize the message
 - Use personal pronouns (I, my, we)
- Read the message out loud
 - If errors occur, modify the message



**Additional examples posted 9/23/19 under handouts section in KSHA*

Sitting to stand from chair, using a walker:

1. Seated in Chair



2. Push up from chair



3. Place hands on walker



Photo credit: Stacie Delezene, M.S., CCC-SLP
Omaha, NE



PRESS  FOR
HELP

Credit: Stacie Delezene, M.S., CCC-SLP
Omaha, NE

Functional Impact: Case Study

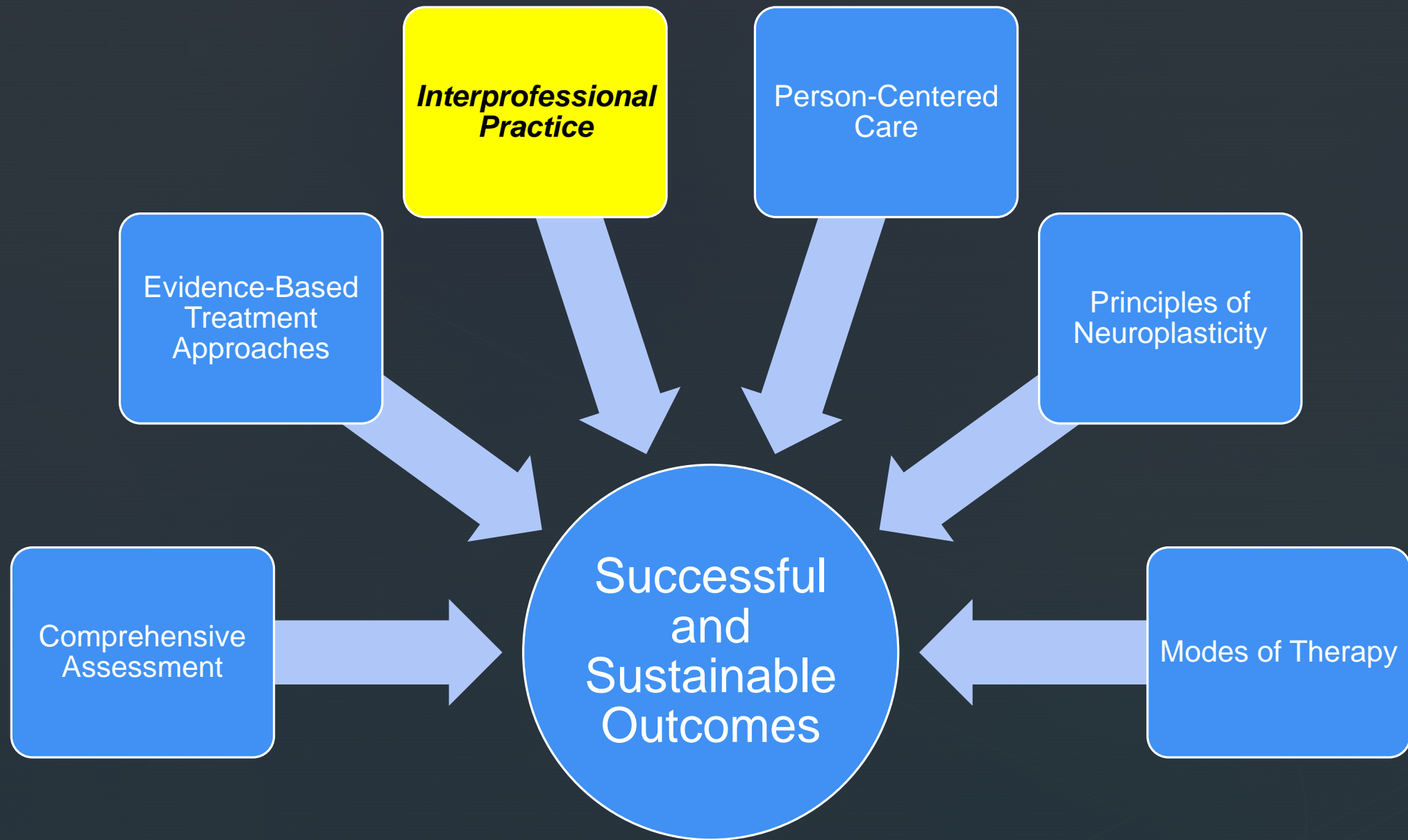
- Medical Diagnoses: Multiple CVA, COPD, Vascular dementia, DM
- Had been admitted to behavioral health unit with alleged physical and verbal altercation in his home environment, dx with CVA
- Precautions: fall risk, right neglect, h/o aggressive behaviors, anxiety
- Significant frustration expressed across all disciplines during tx, with potential to limit progress
- Also often frustrated with staff and his wife
- Frequent perseverations on objects of frustration (e.g., broken partial dentures)

Case Study: SLP interventions

Treatment Technique	Pt Response to Intervention
Spaced-Retrieval training, “What should you do after you get done with breakfast?” Initial trained response: “Brush my teeth.” (Other targets trained during tx as well)	Added, “and shave” to response. Able to carry over correct response to next day. SLP added graphic cueing system to further reduce frustration with am adls.
Graphic cues: OT/ST collaboration for SLP to set up cue card for staff to use during morning adl’s.	Pt required 2-3 verbal cues in addition to written cues, but completed am adls with significantly less frustration; staff happy too!
Graphic cues: SLP set up Visitor’s Log & daily calendar system for pt’s wife, other visitors, and staff to utilize to minimize frustration throughout the day	Pt’s wife able to communicate when she had been there and staff able to reference to reduce pt anxiety/frustration, Activities staff able to facilitate increased socialization
Graphic cues: PT/ST collaboration to design cue cards with one-step instructions for PT and/or RNA to use during functional transfers and ambulation in parallel bars	Reduced physical cueing for transfers from max to min. Enabled pt to achieve max progress with ambulation with PT, RNA able to continue program to maintain mobility

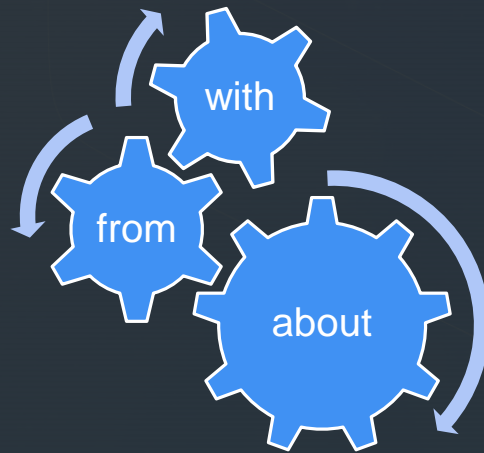
Case Study: Documentation example(s)

- "...given 2 verbal cues from SLP to look at cue card to complete morning grooming adl's, pt completed task with 100% acc'y given fewer cues from SLP indicating success of errorless learning tech to encourage use of curing card for morning adl's."
- "During a functional transfer with PT, pt now needing min cues to transition through familiar steps of a sequence, as opposed to max cueing at times before SLP implemented written instructions and began working on improved acc'y for 2-step directions."
- "Pt expressed that he is interested in working on writing, but SLP needs OT to address positioning and adaptive equipment needs to improve the mechanics before function can be addressed therapeutically."



Interprofessional Practice

Learning



Each other

<https://hsc.unm.edu/ipe/resources/ipec-2016-core-competencies.pdf>
ASHA Interprofessional Practice

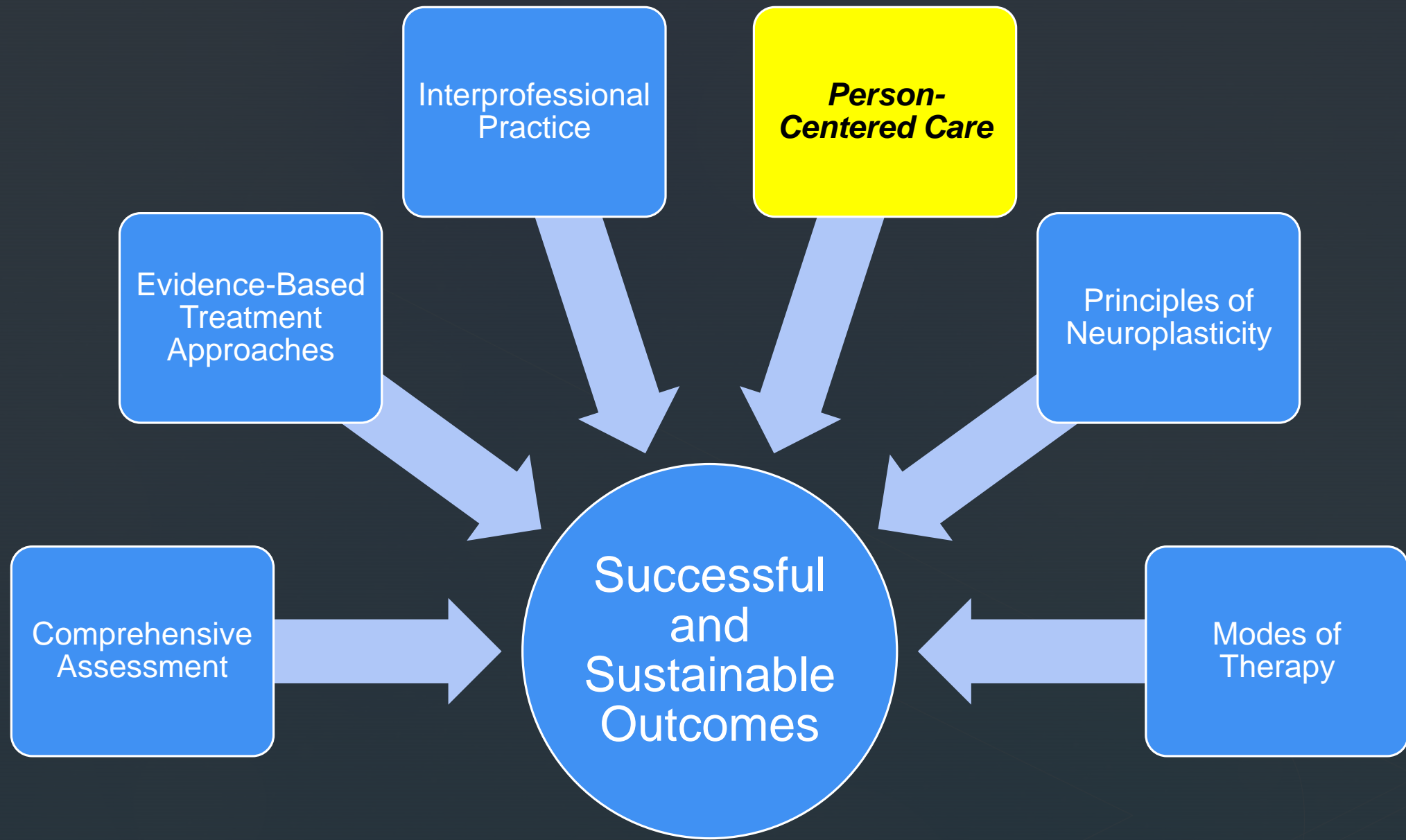


LAURA

ANNE

▶ ▶▶ 🔊 2:28 / 4:31

CC ⚙️ HD 📺 🖥️ 📶 🗉



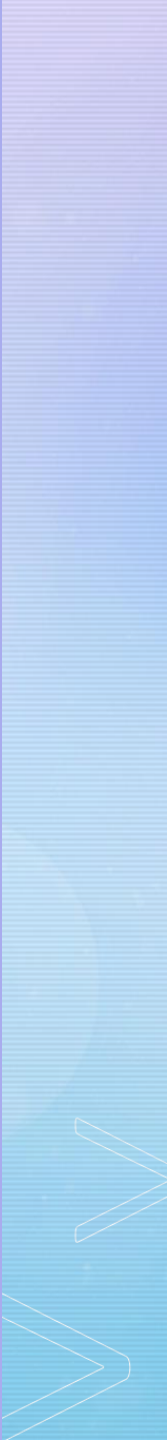
Life Participation Approach to Aphasia (LPAA)

Five Key Elements:

1. Goal = enhance life participation
2. All with aphasia are entitled to services
3. Outcome measures include documented life enhancement
4. Intervention targets include both personal and environmental factors
5. Availability of services at all stages of aphasia is emphasized



LPAA in Action

- Discover *competencies* vs. *impairments* of the Person with Aphasia (PWA)
 - Identify the positive impact of support
 - Include treatment focus on life goals
 - Create and support an “aphasia-friendly” environment
- 

ICF Framework applied to Aphasia

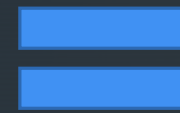
Assessment Data

- Body Structures & Function
 - WAB-R
 - Objective measures
- Activities & Participation
 - ALA-2
 - Interview
- Environmental & Personal Factors
 - CCRSA
 - Interview



Clinical Reasoning

- What strengths can be utilized?
- Which impairments most impact function and QOL?
- Which activities are most important?
- How do personal or environmental factors help or hinder?

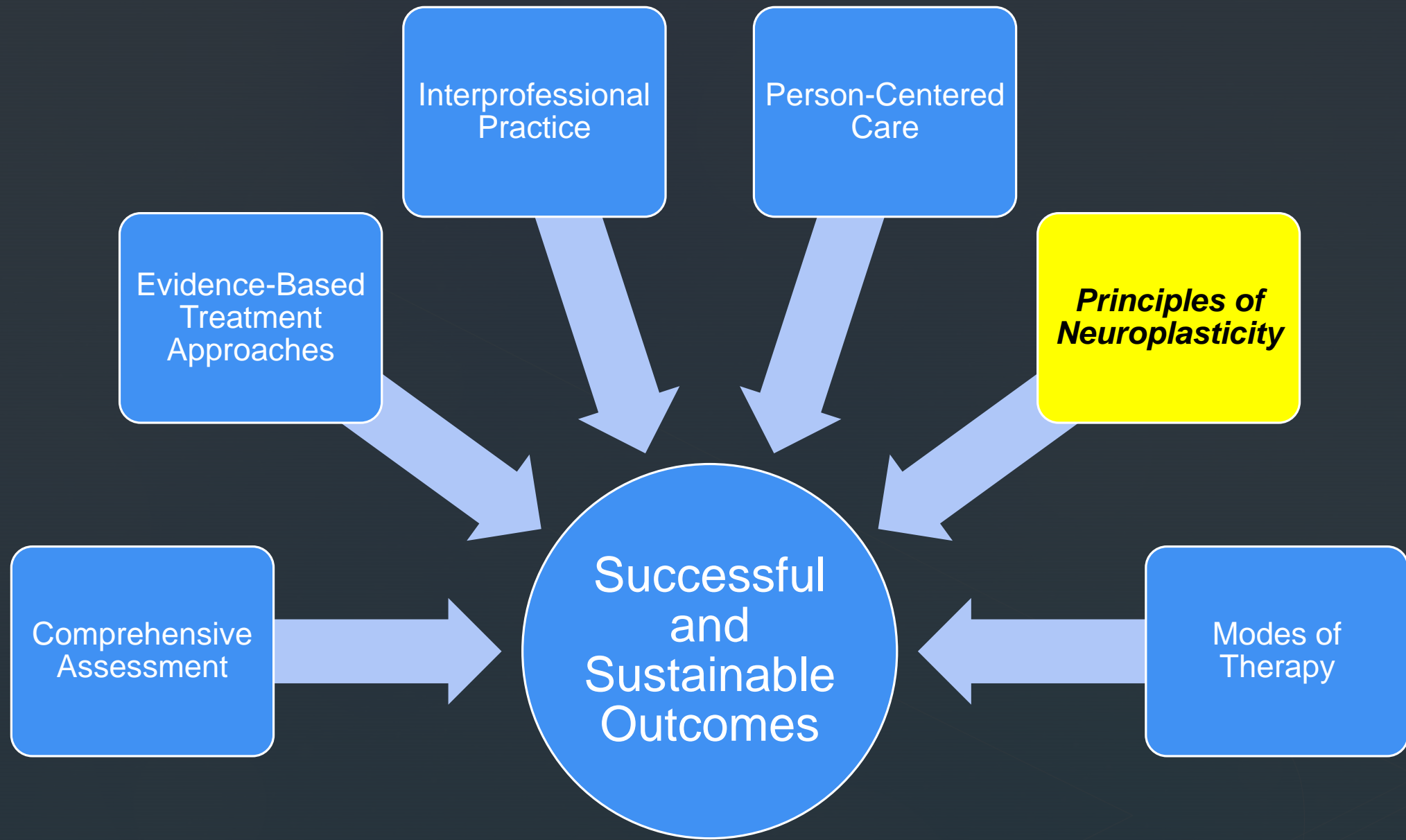


Goals

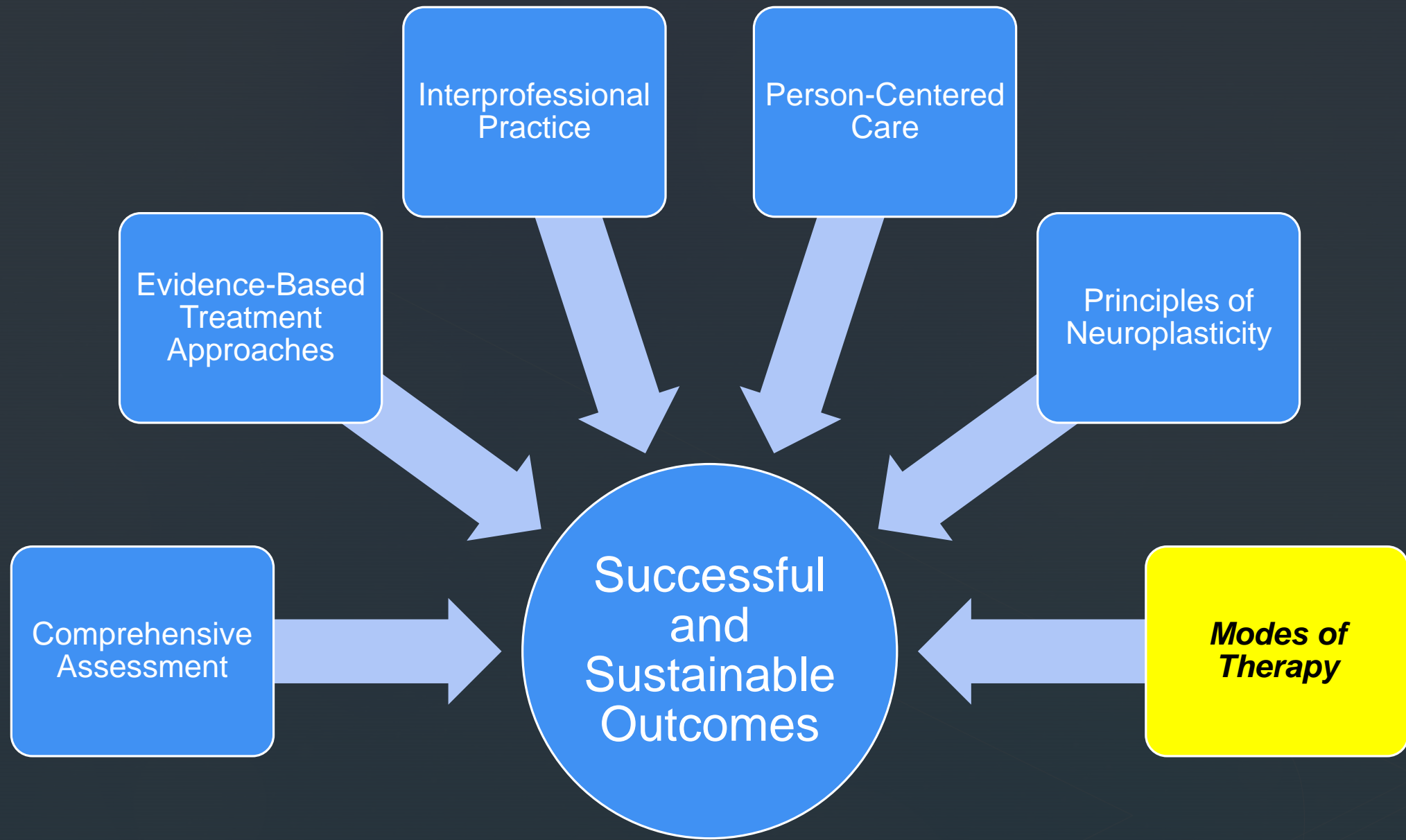
^a WAB-R: *Western Aphasia Battery—Revised* (Kertesz, 2006)

^b ALA-2: *Assessment for Living with Aphasia - 2nd edition* (Kagan et al., 2007)

^c CCRSA: *Communication Confidence Rating Scale for Aphasia* (Babbitt, Heinemann, Semik, & Cherney, 2011)



Use it or lose it	Use it and improve it	Specificity	Repetition Matters
Intensity Matters	Time Matters	Salience matters	Age matters
Transference	Interference	Attention	Stimulation
Simultaneity	Sleep	Emotion	Reward



Modes of Therapy and Neuroplasticity

- The modes of group and concurrent treatment help foster some of the specific principles such as intensity, transference, and interference.
 - Kleim & Jones, 2008



Group Treatments for Aphasia

ASHA Treatment Approaches

“In addition to individual treatment for aphasia, group treatment is often used as a format to apply learned strategies in a more natural conversational context.”

Group Therapy after Stroke

Evidence-Based Review of Stroke Rehabilitation, Chapter 14

Conclusions Regarding Group Language Therapy

There is level 1a evidence that group treatment may improve communicative ability but not conversational ability, non-verbal reasoning, verbal expression, auditory comprehension or fluency as compared to individual treatment.

There is level 1b evidence that group treatment, individual treatment and combined group and individual treatment may not produce different results in terms of word retrieval.

There is limited level 2 evidence that immediate group therapy may improve language impairment when compared to deferred group therapy; however, evidence for the effect on communicative ability is conflicting.

Participation in group therapy may result in communicative and linguistic improvements.

Aphasia Groups that Work: Structure for Success

Redmond, Richman, Williamson, & Georgeadis, ASHA 2016

TOPIC: Food

SUPPORTED LEVEL

For severe aphasia, activities encourage multi-modal communication and are designed to have a slower pace to allow more time for auditory processing and response formulation.

OUTCOMES:

Use multi-modal communication to express ideas related to food.
Practice ordering from a menu with use of strategies.

WARM-UP:

Group members will complete food pairs read aloud by the group leader (e.g. bacon and... , salt and...).

LANGUAGE ACTIVITY:

Using the phrases, “Yes, I do...” or “No, I don’t...”, or gestures, group members will communicate answers to food related questions (e.g. Do you eat sushi?).

Group members will practice using the phrase “I had a stroke. Just a minute.” and associated gestures. *Gesture model should be provided by the group leader, such as holding up their pointer finger.*

Group members will use menus to practice ordering food.

CARRYOVER:

Group members will communicate or demonstrate what strategies they use when requesting food at home and when dining out.

How has dining out changed since your stroke?

Do you eat in restaurants more or less than before your stroke?

A Book Club for Aphasia Treatment

A university clinic revamps its approach to encourage attendance and participation in its aphasia treatment group.

BY NANCY NAPERALA

You may also want to try a book-club approach with aphasia patients if any of the following characteristics apply to your current large treatment group:

- There's more yawning than communicating during the group sessions.
- Turnout doesn't meet an acceptable concept of a "group."
- Your client population has diverse cognitive, speech and receptive/expressive goals.
- The time and effort spent designing an engaging treatment plan outweighs its actual value.
- Stimulating discussion topics based on current events are too polarizing.
- You want to improve mutually beneficial relationships and client-focused treatment.

- Could this be modified for small group vs. large group??
- SNF/AL setting vs. community setting?
- Regular activity offered through activities department?

[The ASHA Leader, 1 May 2019](#)

Group or Concurrent Treatment Potential?

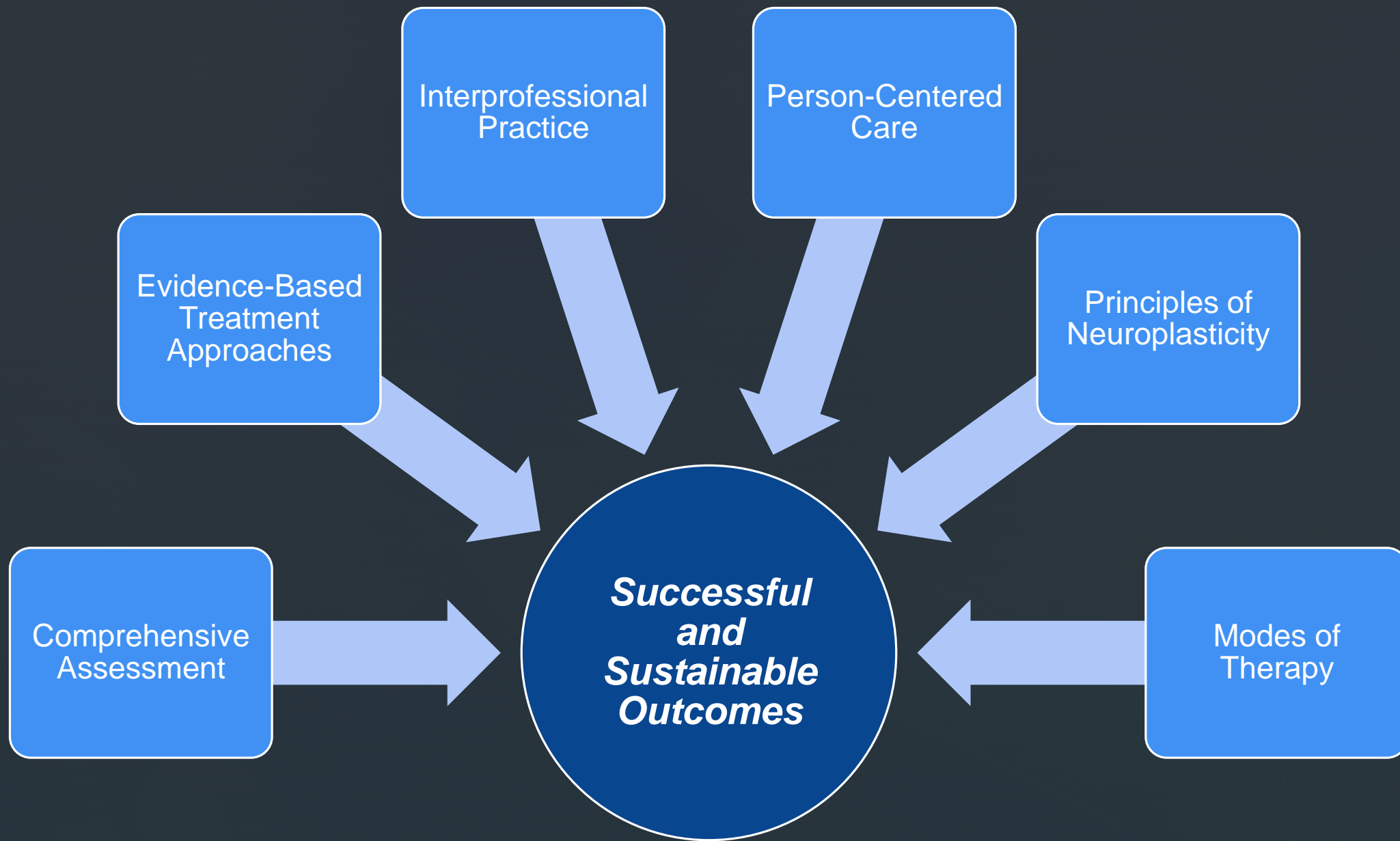


Possible Goals of Group Participants

- AAC use
- Sequencing
- Naming and word-finding
- Picture or action description
- Attention to task
- Problem-solving

Summary

- Treatment strategies for cognitive-communication impairment related to progressive neurological disease **are different from** treatment strategies for aphasia related to a stroke
- BUT there are similarities and overlap, lending support to the **importance of comprehensive assessment**
- Treatment that incorporates a variety of evidence-based techniques based on **etiology and accurate diagnosis**, *and* takes into account interprofessional practice, person-centered care, principles of neuroplasticity and effective use of any/all modes of therapy will provide the best chance of **sustainable outcomes**



- Full copy of today's presentation will be posted in the handouts section at ksha.org and will be available for approximately 1 month
- Feel free to contact me at: Jeanne.Copeland@genesishcc.com

Thank you!

References

- Aphasia. (n.d.). Retrieved May 1, 2019, from <https://www.asha.org/Practice-Portal/Clinical-Topics/Aphasia/>
- Basso, A., & Macis, M. (2011). Therapy Efficacy in Chronic Aphasia. *Behavioural Neurology*, 24(4), 317-325. doi:10.1155/2011/313480
- Beeson, P. M., Higginson, K., & Rising, K. (2013). Writing Treatment for Aphasia: A Texting Approach [Abstract]. *Journal of Speech, Language, and Hearing Research*, 56(3), 945-955. doi:10.1044/1092-4388(2012/11-0360)
- Cherney LR. (2004). Aphasia, alexia and oral reading. *Top Stroke Rehabil*, 11(1), 22-36.
- Elman, R. J., & Bernstein-Ellis, E. (1999). The Efficacy of Group Communication Treatment in Adults With Chronic Aphasia [Abstract]. *Journal of Speech, Language, and Hearing Research*, 42(2), 411-419. doi:10.1044/jslhr.4202.411
- Hula, W. D., Doyle, P. J., Stone, C. A., Hula, S. N., Kellough, S., Wambaugh, J. L., Ross, K.B., Schumacher, J.G., Jacque, A. S. (2015). The Aphasia Communication Outcome Measure (ACOM): Dimensionality, Item Bank Calibration, and Initial Validation. *Journal of Speech, Language, and Hearing Research*, 58(3), 906-919. doi:10.1044/2015_jslhr-l-14-0235
- Kagan, A. & Simmons-Mackie, N. (November 2013). From My Perspective: Changing the Aphasia Narrative. *The ASHA Leader*, Vol. 18(11), 6-8. doi: 10.1044/leader.FMP.18112013.6. Retrieved from <http://leader.pubs.asha.org/article.aspx?articleid=1788363&resultClick=1>
- Kleim JE & Jones TA (2008). Principles of experience-dependent neural plasticity: Implications for rehabilitation after brain damage. *J Speech LangHear Res*, 51(1):S225-S239.
- Life Participation Approach to Aphasia. (n.d.). Retrieved from <https://www.asha.org/public/speech/disorders/LPAA.htm>
- Shah, P. P., Szaflarski, J. P., Allendorfer, J., & Hamilton, R. H. (2013). Induction of neuroplasticity and recovery in post-stroke aphasia by non-invasive brain stimulation. *Frontiers in Human Neuroscience*, 7. doi:10.3389/fnhum.2013.00888
- Simmons-Mackie N & Damico J (2009). Engagement in group therapy for aphasia. *Semin Speech Lang*, 30: 18-26.