Childhood Apraxia of Speech
A Multi-Sensory Approach to Achieving Speech Outcomes
David W. Hammer, M.A. CCC-SLP
Childhood Apraxia of Speech Association of North America

Disclosures

• I receive compensation for my role with CASANA.
• I receive ongoing compensation for my participation in the production of the CASANA DVD “Treatment Strategies for CAS.”
• I act as the ASHA CE Consultant for CASANA.
• I receive a percentage of the sale of my children’s book “Your Time Will Come”.

If children have minimal speech, how do we get started?

• Build on expressions, vehicle, animal and environmental sounds.
• [Handout – “The Big Book of Exclamations” by Teri Peterson]
• [Video - Shane, age 3-6]
How do we facilitate accurate articulatory postures?

- Use “starter positions” such as "mm", "oo", "ee" and even "rr"!
- [Video Clip - Austin, age 4-3]

Does it help to use “catchy” names for sounds?

- Enhances fun with sounds, but try to incorporate placement/manner cues. [handout - Verbal/Visual Cues]
- Friendly Sounds Demo [handout]
- Parent fill-in [handout]

Do we work on isolated sounds or sound sequences?

- Focus is on movement sequences.
- “sh” demonstration
- [Video - Max, age 5-6]
What should I consider in selecting speech targets?

- Margaret “Dee” Fish in “Here’s How to Treat Childhood Apraxia of Speech” - not just nouns, but verbs and expressions like “wow” & “hey dude”.
- Teach CONTROL/POWER words beyond “no”.
- Target final voiceless consonants.
- Use child and therapy goal-determined strategies like fun frustration phrases (“Oh milkshake!”)
- Develop core vocabulary book in early stages.

What is a core vocabulary book?

- An important tool for children with limited lexicons.
- Enables the child to sense early success.
- Allows parents to feel part of the “team”.
- A “Grandma’s Brag Book” contains pictures for functional communication and therapy targets.
- Has word printed at the top.
- [Video Clip - Luke, age 3-2 and Sharon]

What should I consider in moving to word combinations?

- The use of 3 bins/boxes to help decide “at the moment” which 2 words should be targeted
- First bin -- “well-rehearsed” words
- Second bin -- words child can say with cueing
- Third bin -- future functional words
- Start with bin #1 only - then #1 and 2...
How do I use “key words” and “key contexts”?

- Use “key words” or “key contexts” to build automatic responses for more challenging sound sequences.
- Example: /k/ facilitation with 4-year-old

What about vowel modification?

- Will be quite challenging – parents move quickly through vowels.
- Pam Marshalla “Place Cues” on YouTube
- In DTTC and “Time to Sing” prolonging vowels.
- Book “Vowel Disorders” and “Handbook of Vowel Disorders” by Ball and Gibbon.
- [Video - Alex, age 5 with Turtle Vowels]

How do we incorporate the use of pictures into therapy?

- Use strategies to sequence pictures for building an airport runway, a road, or a path to obtain a snack!
- [Video - Jonah, age 4]
How do we incorporate early literacy skill building into tx?

• Embed focus on phonological awareness and early literacy skills.
• [Video – Sean, age 4-11]
• Embed focus on phonological awareness and early literacy skills.
• [Video - Austin, age 4-5]

How do we incorporate early literacy skill building into tx?

• Use repetitive books with “fill-in-the blank” strategy.
• Solomon/Pereira “Repetitive Books” article in Apraxia-kids.org
• Read SAME book for 6 weeks!
• Article – “What Factors Place Children With Speech Sound Disorders at Risk for Reading Problems?”

How do we address the suprasegmental features?

• First of all, address throughout therapy.
• Use music [“Time to Sing” and others]
• Prolong vowels and exaggerate stress.
• Target increased inflectional range and variation through use of puppets, character figures, superheroes, Barbie and Ken, etc.
• [Video Clip - Luke, age 4-4]
How do we address the suprasegmental features?

- Use activities like “Build-A-Sentence” for word stress and adapt with frog “clicker”.
- Four different colored phrases – “Who, What, Where, and When”.
- If take out “When”, will allow for yellow to mean “pick any color you need”.
- Reinforce through selection of dinosaurs, figurines, etc for battles, dance contests, etc.

How do we address the suprasegmental features?

- [Video - Luke, age 5-6 with Build-A-Sentence for word stress]
- Kathy Jakielski and Megan Young’s handout for loudness, pitch, stress and rate ideas.
- Facilitate enhanced auditory feedback.
- Talk into tubes, echo microphones, boxes, underwater, etc.
- [Video - Cole age 3-6]

How do we keep children motivated in therapy?

- Intrinsically not that much fun, so must make therapy exciting and varied.
- Find out what gives them “brain tingles!”
- Monitor how reinforcement is used so repetitive practice still occurs (KR vs KP).
- Allow for silences and time to process.
STRATEGIES FOR KEEPING SCORE

- OBJECT/PICTURE KNOCK DOWN with graduated scoring [handout]
- BASKETBALL SHOOT with picture cards
- FROG LEAP & RED ROLL/GREEN ROLL [picture slides]

PICTURE DROP

- Enhances verbal response on demand and facilitates focus.

DO-A-DOT MARKER ACTIVITIES

- Products by Rachele Ellsworth from Speech Corner
- Dot Markers from speechcorner.com or dotart.com
- [In Selected Resources handout]
- [Examples]
A Favorite Multi-Sensory Activity
Hop/Jump/Leap Over Activity for Blocked or Random Practice

Another Favorite Multi-Sensory Activity
Cave Hunt with Flashlight

Sound shift from an accurate inaccurate word position

- Use WORD PAIRS with picture cards or printed word.
- Best with continuants (s, sh, f)
- Bus-sock; push/mash-shoe; off-foot
- Fade volume cues (same volume-whisper - "think the word").
“TOP TEN” THERAPY MATERIALS

1 Object boxes labeled with target sounds
2 Basketball hoop
3 A pair of dice
4 Magna Doodle

“TOP TEN” THERAPY MATERIALS

5 Anything Playmobil
6 Ned’s Head
7 Dinosaur or bean bag toss game

Dinosaur Feed Option

- Place carpet square close to dinosaur.
- Place desired toy/game at back of room.
- Says object/picture name _ x’s & throws.
- If gets it into mouth, gets to move back.
- If not, adds x more times to repetition.
- Continue play until reaches toy/game.
“TOP TEN” THERAPY MATERIALS

8 Cardboard and more cardboard
9 Creative stories/game cards [Captain Hammer & Super Sean]
10 Puppet Theatre/Store/Cave

“TOP TEN” GAMES

1 Bob the Builder Bricklaying Game
2 TAZmania
3 Marble Race Game
4 Tumblin’ Monkeys/Honey Bee Tree
5 Candyland/ Candyland Castle
6 Marvel Magnet Alphabet Set
   [Video – Olavo, age 8-6]

7 Pirate Pop-Up
8 Caribou by Cranium
9 Pop The Pig
10 Anything Sue Freiburger makes!!!
What are ideas I picked up from parents, therapists & students?

- Squirt laminated pictures at bathtime.
- Paint a fingernail after so many reps.
- Play Building Leap with variation.
- Use stretchy bugs for continuants.
- Pop bubble wrap under table (student idea)
- Use wipes container for mouth to feed cards.

“TOP TEN”
HOME ACTIVITIES

1. Hop Over/Jump Over Challenge
2. Soccer/Rolling Ball Knock Down
3. Bowling Knock Down
4. Object Drop
5. Picture Drop
6. Squirting Pictures in Tub
7. Basketball Challenge
8. Hide and Find
9. The Feeling Game
10. Word Pair Activities
What are the most common residual issues?

- Persistent sound production errors
- Multi-syllable word breakdowns
- Multi-word utterance breakdowns
- Language errors, especially "functor" omissions and subtle grammatical errors
- Rate of speech issues

SPEECH BUDDIES

- Cleaning – “Recommend one buddy per child, but if multiple users, clean like a fork or knife in mild soap, or submerge for a couple minutes in 70% isopropyl alcohol that you can buy in any drug store”. Alexey Salamini - Articulate Technologies
- [Video to demonstrate from website]

PERSISTENT LANGUAGE ERRORS

- For utterance expansion consider use of “sentence bops” (Modified “high 5’s”).
- Use “Build-A-Sentence”
- May encounter mixed sound/language errors as utterance complexity increases.
  [Example of pronoun + is/are verbs]
RAPID RATE OF SPEECH CLARITY BREAKDOWNS

- Tricky because built into personality.
- Can use pacing boards, etc. but challenging.
- Think about “phrased speech” and make sure adults model as much as possible. [wireless microphone technique]

RAPID RATE OF SPEECH CLARITY BREAKDOWNS

- Use “Build-A-Sentence” even if child is not reading the printed word.
- “Problem with adults who have apraxia is that once they get the motor plan going, they will try to go back to their old fast pace.” Julie Wambaugh

What about co-occurring stuttering or rapid onset?

- System “overload” suspected
- Can treat both at same time with cautions
- Almost overnight intense breakdowns in fluency can occur for children with CAS.
Suggestions When a Child with CAS Becomes Disfluent

- First, don’t panic!!
- Consider adjusting therapy to alleviate increased speech-motor demand.
- Target other areas of need.
- Re-visit need for parental rate of speech or demand adjustments. (wireless mic)

How do we incorporate new technology?

- Use I-Phone and I-Pad apps [Handout - apps]
- Quote: “(The I-Pad) can literally replace every single flashcard that we have, and we have lots and lots of flashcards.”
- Quote: “The I-Pad is a really cool Swiss Army knife but you can’t build a house with it.
- [5 Steps to Getting an iPad Covered…]

Computer Visual Feedback

- Has been available for years, but limited use by therapists.
- Can be the key when other strategies are not effective. (persistent “r” issues and persistent vowel errors)
- Four examples (1) IBM Speechviewer series (2) Video Voice (3) LINGWAVES TheraVox (4) Ultrasound Biofeedback
LINGWAVES TheraVox

- Company in Germany - WEVOSYS
- www.WEVOSYS.com
- [Video – Richie & vowel modification]
- [Video – Zachary & vowel extension]

Ultrasound Biofeedback

- Dr. Jonathan Preston
- Haskins Laboratories & Assistant Professor, Communication Disorders Department, Southern Connecticut State University

Ultrasound Biofeedback Description

- Provides visual feedback of articulators
- Already can do this with the lips in a mirror but now trying to see the tongue with ultrasound
- Shows border between objects of different densities (i.e. border between the tongue and air above it)
Ultrasound Biofeedback Candidates

- Normal vision
- Good cognitive skills
- Can sustain attention and handle drill
- Older children (age 7 and up)
- [Video on DVD – Sean, sagittal view]

What other challenging questions do we need to ask?

- What about oral-motor strategies?
- What should look different in IEP goals for CAS?
- What about group therapy for CAS?
- What about child cooperation issues?

What About Oral-Motor Therapy Strategies?

- Diane Bahr and Sara Rosenfeld-Johnson’s suggested in their 2010 article to use term “Oral Placement Disorders”
- Diane Bahr’s “Nobody Ever Told Me (or My Mother) That! Everything from Bottles & Breathing to Healthy Speech…”
- Greg Lof ASHA 2009 ASHA [Read]
- Caroline Bowen “Controversial Practices…”
How should IEP goals look different for children with CAS?

- If limited lexicon, development of a core vocabulary with specific rationale for word choice would be included.
- Work on sound sequencing and syllable shapes would be specified.
- Vowel accuracy would likely be targeted.
- Prosody goals such as syllable and word stress would be included.

What About Group Therapy?

- At some stage in the therapy process, may be the best option.
- Can target language/pragmatic goals more effectively [ASHA Leader 9/09]
- Can enhance pragmatic communication which often is weak (the “everybody drop what they’re doing -- Luke is talking” syndrome).

What Should We Expect for Outcomes with CAS?

- Will vary greatly depending on a range of factors (cognition, motivation, home practice, confounding diagnosis, etc.)
- [Kathy Jakielski comments]