Web Seminar

Treatment of Speech Sound Disorders: New Approaches

Given today's time and resource constraints, SLPs are experimenting with a variety of service delivery schedules for children (aged 3–11) with speech sound disorders. Learn how to combine current thinking about motor learning with frequent, brief sessions to maximize intervention time. This program reviews "tried and true" techniques (e.g., phonetic placement, shaping) and surveys new ideas including slow motion speech, shadowing, unison speech, and flooding. We will examine alternatives to the traditional two, 30-minute sessions per week, looking at the evidence for their effectiveness and discussing advantages and challenges.

You will be able to:

- identify differences between traditional motor learning approaches and new models
- determine which students might be candidates for short, frequent sessions
- implement strategies for maximizing target trials per session
- identify special populations that might benefit from increased dose frequency

LIVE REGISTRATION

Live Broadcast
Wednesday, November 2, 2011
2–4 p.m. Eastern time
OR
ON DEMAND REGISTRATION

Available On Demand
through November 2, 2012

The seminar lasts two hours. The live broadcast begins at:

2:00 p.m. Eastern
1:00 p.m. Central
12:00 noon Mountain
11:00 a.m. Pacific

Faculty

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Manager
Liz Ehrstein, Instructional Designer, ASHA

This course is offered for 0.2 ASHA CEUs (Intermediate level, Professional area).

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Live Broadcast 1148/On-Demand 8065

Treatment of Speech Sound Disorders: New Approaches

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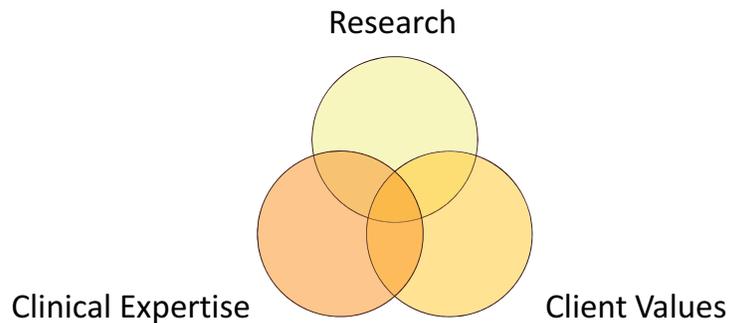## Treatment of Speech Sound Disorders: New Approaches

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Learning Objectives

After completing this program, you will be able to:

- Identify differences between traditional motor learning approaches and new models
- Determine which students might be candidates for short, frequent sessions
- Implement strategies for maximizing target trials per session
- Identify special populations that might benefit from increased dose frequency

BASIC CONSIDERATIONS

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The Great Divide

Phonetic vs. Phonemic

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Making Evidence-Based Decisions

Research

Clinical Expertise

Client Values

Kamhi, 2006; Cirrin et al., 2010   5

EBP Resources

- Compilation of ASHA resources:
  - http://www.asha.org/slp/schools/prof-consult/EvdncBsdSchls.htm
- User friendly guide to using research evidence:
  - http://www2.ed.gov/rschstat/research/pubs/rigorousevid/guide_pg3.html
- Combination electronic and print, peer-reviewed journal covering a different EBP topic in every issue:
  - http://www.speechandlanguage.com/ebp-briefs
- Database of **B**est **I**nterventions and **T**reatment **E**fficacy across the scope of SLP practice:
  - http://www.speechBITE.com
- Smartphone apps:
  - PubSearch (search PubMed—free app)
  - ArticleSearch (search scientific papers, journals, magazines)

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Treatment Effectiveness

Which is the most effective treatment?

 Target matters more than treatment (Gierut, 2005)

Weston & Bain, 2003   7

Efficiency: Is Faster Always Better?

Desired outcome is a crucial factor in determining which approach is most efficient.

Kamhi, 2006   8

Traditional Target Selection Criteria

Traditional (sound-by-sound) approaches focus on targets that are:

- Stimulable
- Early developing
- Easier to produce
- Frequently occurring
- Most likely to interfere with intelligibility

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Using Developmental Norms

Compare child's productions to:

- Developmental sound classes
  - Early, middle, late (Shriberg, 1993)
- Norms for a specific measure
- Norms for individual sounds
  - Consider nature of error
    » Non-developmental
    » Dialect differences

Smit et al., 1990; Stephens et al., 1986   10

Newer Target Selection Criteria

Newer (systemic) approaches focus on targets that are:

- Not stimulable
- Later-developing
- Phonetically more complex
- Linguistically marked

Gierut, 2001; Bowen, 2009   11

Frame vs. Content

- Common phonotactic constraints:
  - Lacking final consonants
  - Lacking clusters
  - Limited syllable shapes
  - Frequent reduplication or assimilation
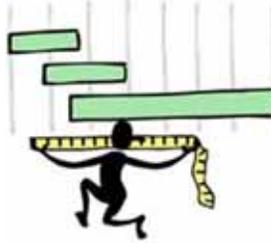- Build the **frame** first

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Distance Metric

Select targets that are maximally distinct in terms of:

- Place
- Manner
- Voice
- Linguistic unit

Williams, 2005 13

Poll

- For a child who needs system-wide change, which phoneme provides the most contrast for /j/?
    - a. /f/
    - b. /l/
    - c. /m/
    - d. /w/

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Lexical Properties: Frequency and Density

- Frequency = How common the word is
- Neighborhood density = The number of phonetically similar words based on one sound substitution, deletion, or addition (e.g., neighbors for "feet" include "fleet," "meet," "feel", "eat")
  - High-density = has 10 or more "neighbors"

What are neighbors for "ball"?

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Possible Answers to "Neighborhood" Activity

fall	stall	bomb
small	call	bop
hall	wall	bell
tall	boss	bill
mall	bought	bowl
doll	bog	
crawl	balk	

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High Frequency, Low Density Targets

- http://slpath.com (word lists)

  High frequency = 100 or >

  Low density = <10

  - drive   (105, 9)
  - house (591, 7)
  - three   (610, 9)

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Deep or Broad?

Training Deep
- Remediate just 1 or 2 sounds
- Use phonetic approach, using traditional artic treatment strategies
- Provide lots of drills
- Focus on correctness

Training Broad
- Target a few exemplars for each pattern being addressed
- Use cognitive-linguistic approach
- Provide limited drill
- Focus on system change and intelligibility

What about cycles?

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Individualized

Questions & Answers

To ask a question:

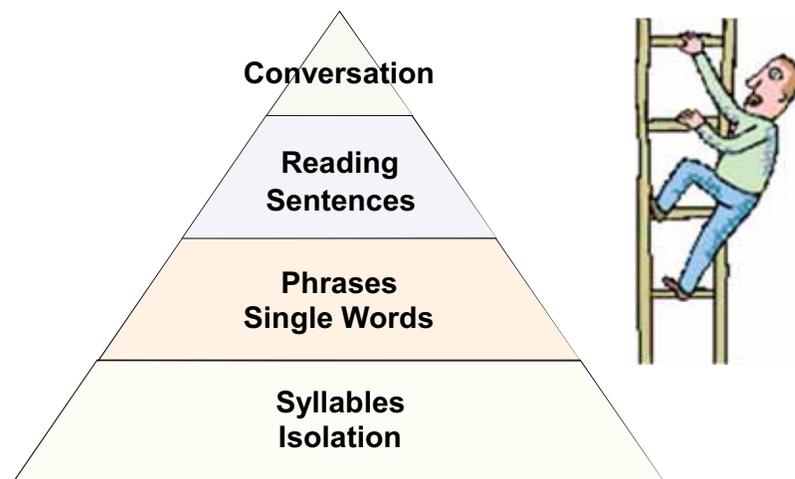| Live Web Access: | Type your question into the Q & A panel and send to "All Panelists." |
| Live Telephone Access: | Press *1 on your telephone keypad to signal that you wish to ask a question. |

TREATMENT DECISIONS

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Traditional Articulation Therapy Hierarchy

Conversation

Reading
Sentences

Phrases
Single Words

Syllables
Isolation

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New Motor Learning Hierarchy

1. **Pre-practice/placement**
   - Teach target in isolation and syllables until ~80% accurate
2. **Practice**
   - Randomized targets across difficulty levels during each session
3. **Generalization**

Maas et al., 2008; Ruscello, 2008   23

Pre-Practice: Phonetic Placement

Example: Phonetic placement for /s/

- raise tongue so sides contact inner surface of teeth ("butterfly" or /I/ position)
- put tongue depressor along midline to show where to groove
- place tongue tip behind upper or lower teeth
- direct airstream toward cutting edge of teeth
  - http://www.speech-language-therapy.com/fsd-butterfly-procedure.htm (Bowen, 2009)

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Pre-Practice: Shaping

Example: Shaping for /r/

- Produce /l/ while lowering the jaw slowly
- Produce /l/, /n/, or /d/ and pull the tongue back until /r/ results. (Assist with a tongue depressor, if needed.)
- Place the tongue lightly between the teeth and produce a voiced "th" sound. Then retract the tip straight back into the /r/ position.

Pena-Brooks & Hegde, 2007; Secord et al., 2007; Ruscello, 2008   25

Pre-Practice: Contextual Facilitation

- Consider syllable stress, word position, adjacent sounds
- **Example: Contexts to facilitate production of /r/**
  - After /j/: "Eureka!," "your rabbit," "you're reading"
  - After /t/ in clusters: "tree," "trip," "tray"
  - After /k/ in clusters: "creek," "creep"
  - Between vowels: "teary," "berry"

Pena-Brooks & Hegde, 2007; Secord et al., 2007; Ruscello, 2008   26

Example: Facilitating Context + Shaping

hat **+** shop **=** chop

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Practice Stage

In each session, include:
- The full range of tasks
  - Words, phrases, sentences, conversation
  - Both imitative and spontaneous productions
- All target sounds

Skelton & Kerber, 2005; Skelton & Price, 2006; Ruscello, 2008; Bowen, 2009   28

Practice Strategies

- Slow motion speech with vowel prolongation
- Shadowing (echo speech)
- Unison speech
- Backward build-ups for multisyllabic and/or fossilized forms
    - ball
    - ketball
    - basketball
- Backward chaining
    - Combine one highly practiced syllable with several potential "first syllables"

Smit, 2004; Ruscello, 2008; Bowen, 2009   29

Backward Chaining for Intervocalic /k/

- Elicit "king"
- Practice saying, "bay," "may," "way" briefly
- Practice saying, "KING-bay," "KING-may," "KING-way"
- Switch the syllable order, "bay-KING," "may-KING," "way-KING," keeping the stress on KING
- Shift the stress to get *baking*, *making*, *waking*, with the emphasis on the first syllable

Bowen, 2009 http://speech-language-therapy.com/tx-facts-and-tricks.html   30

The Intrusive /h/

For Prevocalic Voicing
- Prime with initial /h/ words: heel, heap, hair, high, hoe
- Model target words with an intrusive /h/: p-heel-peel, p-heap-peep, p-hair-pear, t-high-tie, t-hoe-toe
- Have the child repeat the sequences with the intrusive /h/

For Stopping of Fricatives
- Prime with initial /h/ words: heel, hum, hoe, high
- Practice target words with an intrusive /h/: f-heel-feel, th-hum-thumb, s-hoe-sew, sh-high-shy

Bowen, 2009 http://speech-language-therapy.com/tx-facts-and-tricks.html 31

Practice: Increasing Automaticity

- Speed drills
  – Repeat set of phrases or sentences, constantly reducing time but maintaining accuracy rate
- Auditory masking
  – Repeat practice material while masking noise is played through headphones
- Rehearsal matrices
  – Repeat nonsense syllables with varied syllable shapes: VC, CVC, CV, VCCV

Ruscello, 2008 32

Changes That Facilitate Generalization

- Response levels (e.g., words, sentences, narrative)
- Rate: "regular talking" vs. "fast talking"
- Stress, intonation, and emotion
  - Target sentence: Bob ate pie.
    - *Who* ate pie? Did Bob *make* pie? Did Bob eat *cake*?
- Number of repetitions
- Body position or activity
  - Chanting, singing

Ruscello, 2008; Bowen, 2009   33

Contrast Therapy

- Create new phonemic distinctions in language by teaching feature contrasts (e.g., place, manner, voice)
- "Make these two words sound different."

Ruscello, 2008   34

Minimal Pairs x 3

- **Target-substitute**
  - Target vs. error sound
- **Target-known sound**
  - Target vs. another sound already in child's repertoire
- **Target-target ("empty set")**
  - Two new sounds introduced simultaneously

Gierut, 1992, 2001   35

Multiple Oppositions

Uses larger treatment sets (e.g., minimal trios or quads instead of pairs)

- For a child who collapses to /t/:

– tea	**vs.**	tree	me	she
– toe	**vs.**	show	go	mow
– tie	**vs.**	try	lie	sigh

- For a child who reduces clusters:

– pill	sill	spill
– core	sore	score
– clap	class	clasp

Williams, 2000   36

Hybrid Approaches

- Rvachew–Representation-based approach
  - Phase 1: Phoneme perception and phonetic training
  - Phase 2: Phonemic treatment with minimal pairs
  - Phase 3: Phonetic transfer
- Bowen–PACT (Parents and Children Together)
  - Family education
  - Phonological awareness tasks
  - Phonetic production practice
  - Minimal pairs contrast and auditory bombardment
  - Home practice

Ruscello, 2008   37

Questions & Answers

To ask a question:

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Live Telephone Access:	Press *1 on your telephone keypad to signal that you wish to ask a question.

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MAXIMIZING OUTCOMES

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Involve Parents

- Use fun, play-based, sound-loaded activities that involve models and recasts
  - Provide set-ups—choices, communicative temptations
  - Elicit protests (e.g., playfully calling something the wrong name)
  - Provide auditory input therapy/focused auditory stimulation
  - Use distributed, random 5- to 7-minute bursts of homework
  - Compile "power word" and phrase lists
  - Make a brag book (Bowen, 2009)

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Example Brag Book Page

- "Pop"
- This is an easy word for me. I say it a lot when I pop bubbles. I'm very fast. See if you can beat me!

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Manipulate Practice Schedules

Massed vs. distributed practice (across sessions)
- Massed = Fewer, longer sessions
  - Quick acquisition of skills, but limited generalization
- Distributed = Shorter, more frequent sessions
  - Slower acquisition of skills, but better retention

Blocked vs. random practice (within session)
- Blocked = Repetition of the same target, same level
  - Better in-session results
- Random = Mixed production of all targets
  - Better retention and generalization

Maas et al., 2008, Ruscello, 2008   42

Elicit High Frequency of Production

How many productions are needed per session?

- Edeal & Gildersleeve-Neumann, (2011)
  - Compared 30–40 productions of each speech target to 100–150 productions per 15-minute session

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Provide Extrinsic Feedback

KR vs. KP

- Knowledge of results = Right/wrong
- Knowledge of performance = Specific comments about how to modify placement, rate, voice, etc.
- Provide nonverbal feedback to avoid interfering with the auditory trace
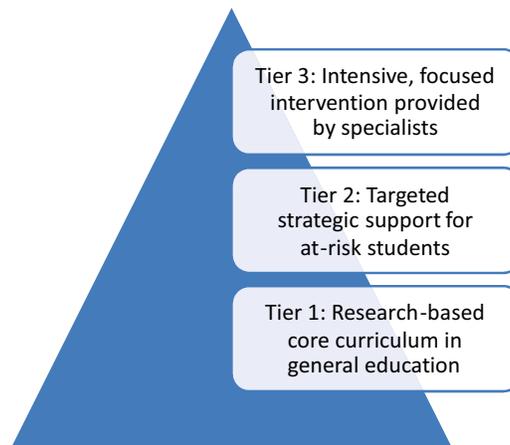
44

Shift to Intrinsic Feedback

Self-monitoring and self-correcting are important intervention targets.

Teach contingency priming.

Pena-Brooks & Hegde, 2007

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Consider Response to Intervention

Tier 3: Intensive, focused intervention provided by specialists

Tier 2: Targeted strategic support for at-risk students

Tier 1: Research-based core curriculum in general education

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RTI Models

Speedy Speech, Illinois (Kuhn, 2006, 2008)

- 5–7 minutes of individual services 3–5 times a week, plus homework contract

Speech Improvement Class, California (Taps, 2006, 2007, 2008)

- Small group, 2 times a week for 30 minutes, plus homework

Early Intervening Services, Louisiana (Mire & Montgomery, 2009)

- Small group, 60 minutes per week, with progress monitoring every 2 weeks

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RTI Kudos and Cautions

KUDOS	CAUTIONS
• Reduces paperwork • Prevents unnecessary labeling • Provides immediate help for students not eligible under IDEA • Reduces lost classroom time	• Account for RTI in workload • Do not let RTI delay referral for IDEA evaluation when needed • Provide training and support • Develop a well-defined set of procedures

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Monitor Generalization

Probe:

- Target sound/pattern in untrained words
- Target sound/pattern in untrained context
- Related but untrained sound/pattern
- Control behavior

"There's an app for that!"

Bernthal, Bankson, & Flipsen, 2009

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Plan for Dismissal

Consider:

– Initial starting severity level

– Years in treatment

– Overall motivation, tolerance, and satisfaction with treatment program

– Comparison to age-matched peers

– Number and type of errors in conversational speech, and stimulability for those errors

Tyler, 2005   50

Questions & Answers

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Summing Up!

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