


Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia



MANAGING SUSPECTED CHILDHOOD APRAXIA OF SPEECH: A CARE PATHWAY

Margit Pukonen, M.H.Sc., The Speech and Stuttering Institute, Toronto
Cindy Earle, M.A., SLP, CCC, The Hanen Centre, Toronto
Lisa Grover, M.H.Sc., Toronto Preschool Speech and Language Services, Toronto
Robin Gaines, Ph.D., Children's Hospital of Eastern Ontario, Ottawa
Carol Theoret-Douglas, M.Sc. (A), Children's Hospital of Eastern Ontario, Ottawa

1




INTRODUCTION

Presented by
Margit Pukonen, M.H.Sc.
The Speech and Stuttering Institute
margitp@speechandstuttering.com

2

THE CLINICAL ISSUES

With the shift to early identification & intervention SLPs are identifying more young children whose verbal expression is notably poorer than their receptive abilities



- Increase in queries re: CAS
- Increase in questions about how to provide intervention

WHAT WE KNOW...

- Cognitive, linguistic and motor processes are inextricably linked in the developing child
- There is an overlap of symptoms between CAS and other speech/language difficulties

→ Identification is a challenge

WHAT WE KNOW...

- When CAS is suspected in infants and toddlers, 6 – 12 months of diagnostic therapy is recommended before applying a label (*Davis and Velleman, 2000*)
- There is limited information available on intervention for CAS in young children

→ What intervention should SLPs provide if they suspect CAS in a young child?

ONTARIO'S PRESCHOOL SPEECH & LANGUAGE SERVICES SYSTEM

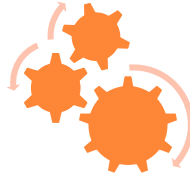
- The province introduced an initiative in 1996 to support early identification and intervention of children birth to age 5 with speech-language difficulties and to reduce disparities in service between districts
- Each of the 31 districts in the province were to build on existing services to develop a coherent and equitable speech-language service system based on a set of core components

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia

CORE SYSTEM COMPONENTS

- **Early identification**
- Simplified access
- Common intake
- **Assessment**
- **Range of Interventions**
- Transition planning
- **Parent support and education services**
- Public awareness/education



TASK OF THE MCYS MOTOR SPEECH WORK GROUP

- Survey current practices and challenges in service delivery to young children with motor speech difficulties in Ontario
- Review the evidence base and best practices for assessment and intervention for this population
- Develop recommendations for a service model to guide practice and support service equity across province

PROVINCIAL SURVEY RESULTS: SUMMARY OF MAJOR THEMES

- Considerable variability in identification and management of this population across the province
- Requests for best practice guidelines
- Requests for continuing education and training
- Perceived lack of resources to meet needs of this population



WORK GROUP ACTIVITIES

- Reviewed the current literature
- Reviewed existing programs for this population in Ontario
- Developed a set of recommendations for identification and intervention.
- Developed tools to facilitate data collection and differential diagnosis
- Developed a care pathway



A CARE PATHWAY TO SUPPORT IDENTIFICATION AND INTERVENTION

- A multi-tiered care pathway for children 20 – 48 months
- Pathway is divided into 2 parts: under 36 months and over 36 months of age
- Identifies three treatment models for young children at various stages of development and identified motor speech needs
- Views identification of motor speech difficulties as a process based on a child's profile and response to intervention
- Describes the process for decision making at each point in the pathway

EARLY IDENTIFICATION, ASSESSMENT AND FIRST/DIAGNOSTIC INTERVENTION

- Model: Parent Training Program
- Parents learn strategies to support their child's expressive communication development



PARENT-CHILD MOTOR SPEECH INTERVENTION

- Parents are coached in the use of strategies to support speech development during play and daily routines
- Child goals focus on expanding speech sound repertoire, syllable shapes and early motor speech control



MOTOR SPEECH THERAPY

- Direct therapy incorporating motor learning principles and with active parent participation
- Child goals focus on development of specific speech goals
- Parent goals focus on developing knowledge and skills to support speech practice at home



THE DECISION MAKING PROCESS

- Provide developmentally appropriate intervention to address primary speech-language need
- Collect data at regular intervals on indicators suggesting motor speech involvement
- Assess child's response to intervention



THE DECISION MAKING PROCESS (CONT)

- Refine diagnosis
- Select next treatment model based on:
 - ongoing concerns regarding motor speech difficulties
 - child's readiness to participate in a more direct treatment approach

EARLY IDENTIFICATION, ASSESSMENT AND FIRST INTERVENTION

Presented by
 Cindy Earle, M.A., SLP, CCC
 The Hanen Centre
cindy.earle@hanen.org

CAS/
SMS

1

• known neurological etiology

2

• complex neurobehavioral disorder

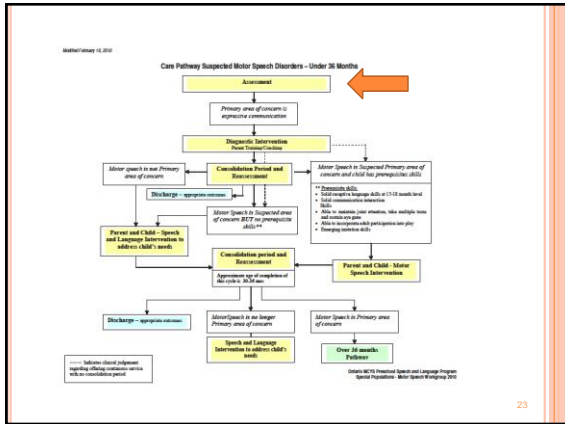
3

• idiopathic neurogenic speech sound disorder



Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia



Take a look... **ASSESSMENT UNDER 36 MONTHS**

Includes assessment (informal or formal) of:

- Receptive language
- Social communication
- Play
- Verbal and nonverbal communication

Note any red flags suggesting possible motor speech involvement - see Motor Speech Checklist

Look for Additional Factors

Clinical Tool

Suspected Motor Speech Checklist

Child's Name: _____ Date of Birth: _____

Child's Age: _____ Months

Scale of Doctor Assessment: _____

1. Case History/Developmental Factors (check all that apply)

2. Early Red Flags (check all that apply)

3. Speech Characteristics (check all that apply)

4. Motor Speech Control during Speech Production (check all that apply)

Clinical Tool

Suspected Motor Speech Checklist

Child's Name: _____ Date of Birth: _____

Child's Age: _____ Months

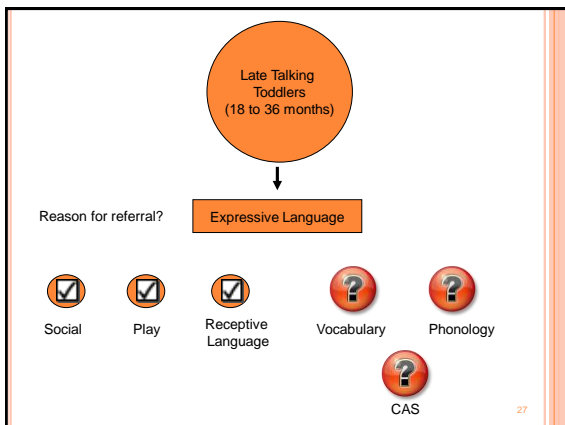
Scale of Doctor Assessment: _____

1. Case History/Developmental Factors (check all that apply)

2. Early Red Flags (check all that apply)

3. Speech Characteristics (check all that apply)

4. Motor Speech Control during Speech Production (check all that apply)



Suspected Motor Speech Checklist

Child's Name: _____ Date of Birth: _____

Child's Age: _____ Months

Scale of Doctor Assessment: _____

1. Case History/Developmental Factors (check all that apply)

2. Early Red Flags (check all that apply)

3. Speech Characteristics (check all that apply)

4. Motor Speech Control during Speech Production (check all that apply)

Owen – 19 months

YOUNG CHILDREN WHO ARE LATE TO TALK

Childhood Apraxia of Speech	Late Talkers
• does not coo or babble as infant	↔ does not coo or babble as infant
• first words are late, and may be missing sounds	↔ first words are late, and may be missing sounds
• only a few different consonant and vowel sounds	↔ only a few different consonant and vowel sounds
• problems combining sounds; may show long pauses between sounds	↔ problems combining sounds; may show long pauses between sounds
• simplifies words by replacing difficult sounds with easier ones or by deleting difficult sounds	↔ simplifies words by replacing difficult sounds with easier ones or by deleting difficult sounds
• may have problems eating	↔ may have problems eating

ASHA 30

REMEMBER FOR CHILDREN < 36 MONTHS

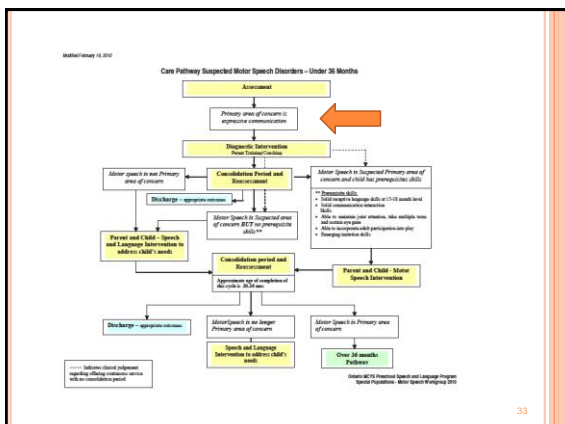
- Delay or impairment?
- Identification is a process
- Don't draw conclusion too early
- Cautious application of the label for infants and toddlers (Davis and Vellman)
- Diagnostic intervention

31

- Assessment results indicate expressive communication is the primary area of concern
- View intervention as diagnostic and continue to gather information to confirm whether there is a motor speech component (Davis and Velleman, 2000)

<input checked="" type="checkbox"/> Social	<input checked="" type="checkbox"/> Play	<input checked="" type="checkbox"/> Receptive Language	<input type="checkbox"/> Vocabulary	<input type="checkbox"/> Phonology
<input type="checkbox"/> CAS				

32



CLINICAL MANAGEMENT OF CHILDREN WHO TALK LATE

Interventions

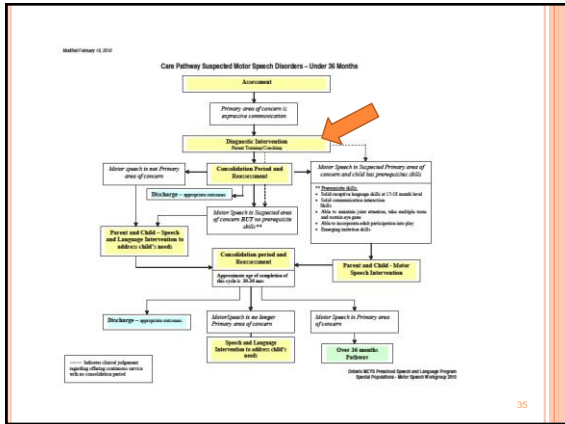
- timely, efficient, effective, evidence-based
- clinical observations for individual children

RTI – should guide treatment decisions

34

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia



Children with CAS or SMS difficulties need a supportive environment that helps them feel successful with communication

ASHA

FIRST INTERVENTION IS DIAGNOSTIC

- Spaced over time
- Create a supportive environment that helps the child feel successful with communication
- Increase child's overall communicative competence
- Consider the child's oral communication needs
- Identify next steps

PARENT TRAINING/PARENT COACHING BASED

Must address child's:

- overall communication needs
- oral communication needs

We do this by:

- Increasing frequency of responsive parent-child interactions
- Incorporating specific child goals to increase child's expressive language

A SAFE, ENCOURAGING COMMUNICATIVE ENVIRONMENT

- Responsive Partners**
 - Face to face
 - OWL
 - Initiations
 - Message
 - Contingent responses
 - Balanced turns
- Child's Oral Communication**
 - Focused stimulation
 - Pair words with gestures
 - Consider existing speech sound repertoire and motor speech needs
 - Create opportunities for child to send messages

A SAFE, ENCOURAGING COMMUNICATIVE ENVIRONMENT

- Responsive Partners**
 - Face to face
 - OWL
 - Initiations
 - Message
 - Contingent responses
 - Balanced turns
- Child's Oral Communication**
 - Focused stimulation
 - Pair words with gestures
 - Consider existing speech sound repertoire and motor speech needs
 - Create opportunities for child to send messages

TARGET WORD® - THE HANEN PROGRAM®
FOR PARENTS OF CHILDREN WHO ARE LATE TALKERS

Pre-program assessment, 5 group sessions, 2 individual consultations with video feedback, over 10 – 12 weeks

Responsive Interactions

- Face to face & OWL
- Contingent responses
 - Interpret
 - Join in the play
- Focused Stimulation
- Gestures
- Expand child's:
 - Messages
 - Pretend play
- Create Opportunities for child to send messages messages


Child Goals

- Noisy
- Spontaneous Imitation
- Spontaneous Use of Single Words
- Combinations

• **10 individual target words**

41

GUIDELINES FOR CHOOSING TARGET WORDS



Words should:


- be motivating for the child to say
- be understood by the child
- start with a sound the child can make
- consider planes of movement
- occur throughout the child's day
- include at least 4 verbs

42

RESPONSE TO INTERVENTION

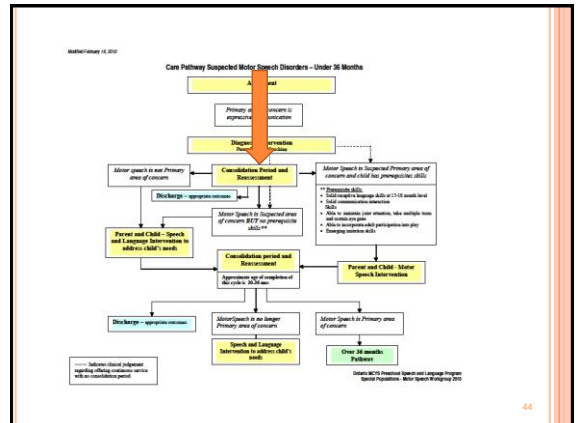
Look at:

- progress in specific goal areas to confirm motor speech continues to be primary area of concern
- Suspected Motor Speech Checklist
- child's prerequisites for a more focused speech approach



→ Make recommendations re: consolidation or continued intervention based on severity

43



PREREQUISITE SKILLS FOR EARLY MOTOR SPEECH INTERVENTION



- Solid receptive language skills at 15 – 18 months
- Solid communication interaction skills
- Able to maintain joint attention, take multiple turns and sustain eye gaze
- Able to incorporate adult participation into play
- Has emerging imitation skills

45

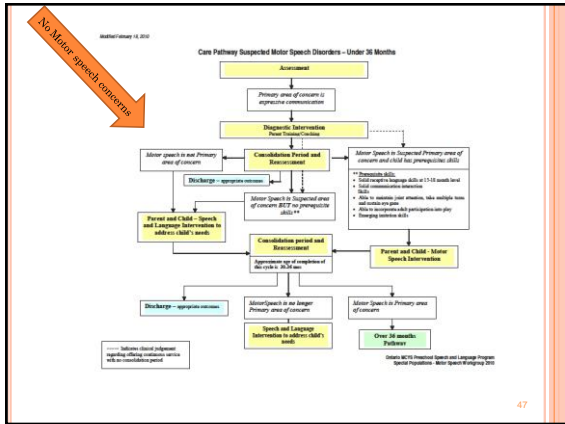
RESPONSE TO INTERVENTION - CONSOLIDATION

Duncan – 27 months

46

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia



RESPONSE TO INTERVENTION - CONSOLIDATION

Suspected Motor Speech Checklist

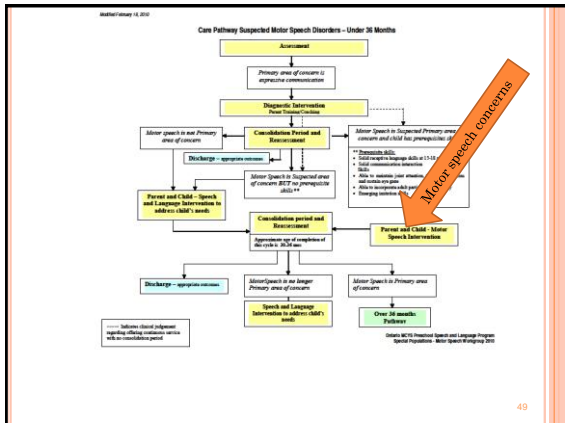
Child Information: Owen, 21 months

Checklist for 12 months

1. Gestures/Developmental Factors (check all that apply)	1	2
2. Verbal/vocal		
3. Intelligibility		
4. Vocabulary		
5. Grammar		
6. Pragmatics		
7. Phonology		
8. Fluency		
9. Comprehension		
10. Reading		
11. Writing		

48

Owen – 21 months



RTI - SUMMARY

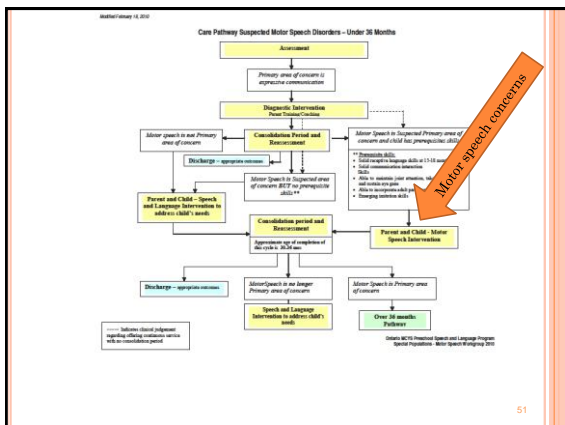
Motor speech is no longer a concern

- Communicative turns are verbal/vocal
- Increase in expressive vocabulary
- Increase in number of consonant and vowel sounds and syllable shapes

Motor speech continues to be a concern

- Communicative turn are verbal/vocal
- Although trying more words – many sound the same and intelligibility limited
- Increase in gesture use
- Limited increase if any in consonant and vowel sounds and syllable shapes

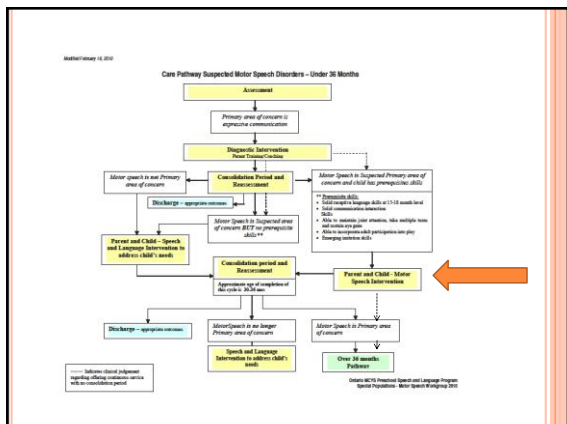
50



PARENT-CHILD MOTOR SPEECH INTERVENTION

Presented by
Lisa Grover, M.H.Sc.
Toronto Preschool Speech and Language Services
lgrover@hanen.org

52



PARENT- CHILD MOTOR SPEECH PROGRAM
 PARENT / CHILD PROFILE

- Parent demonstrates responsive and supportive interaction style
- Child has emerging imitation skills
- Child has receptive language skills within broad average range
- Child uses some form of communication system
- Child demonstrates early red flags – see Suspected Motor Speech checklist

PARENT- CHILD MOTOR SPEECH PROGRAM
 PROGRAM OBJECTIVES

The program was designed to:

- Develop both parent and child skills
- Be play based and child centred
- Have a developmentally appropriate intensity and structure that allows for individualization of child goals
- Incorporate principles of cognitive motor learning theory:
 1. Attention and motivation
 2. Organization of practice
 3. Feedback



PARENT- CHILD MOTOR SPEECH PROGRAM
 PARENT OBJECTIVES

To create parent partners by:

Training parents in strategies to support their child's speech development and facilitate carryover in the home



PARENT- CHILD MOTOR SPEECH PROGRAM
 CHILD OBJECTIVES

To improve children's speech production skills by:

- Activating the speech learning process for young children with suspected motor speech difficulties by improving speech learning skills
- To prepare children for a more structured speech intervention program if required



PARENT- CHILD MOTOR SPEECH PROGRAM
 FRAMEWORK

- 8 - 10 week program (1 screening, 6 intervention sessions, 2 parent only sessions, 1 follow up session)
- Maximum 4 - 5 children + parents
- 2 staff (SLP and support staff)
- Can be modified to run as individual parent-child sessions



Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia

PARENT- CHILD MOTOR SPEECH PROGRAM Session Components

Component	Rationale
Music: Songs and movement	<ul style="list-style-type: none"> • “Wakes up” the motor system • Increases arousal state • Promotes motor imitation • Promotes combined vocalization and gesture • Provides a routine for specific target words

PARENT- CHILD MOTOR SPEECH PROGRAM Session Components

Component	Rationale
Play activities	<ul style="list-style-type: none"> • Parents can establish play routines • Parents can practice strategies within the routines • Can select vocabulary targets that are meaningful and specific to the child

PARENT- CHILD MOTOR SPEECH PROGRAM Session Components

Component	Why?
Play activities <i>continued</i>	<ul style="list-style-type: none"> • Child is exposed to targets in a repetitive manner • Child can practice using targets in a functionally communicative manner (e.g. comment, request, protest)

PARENT- CHILD MOTOR SPEECH PROGRAM Session Components

Component	Rationale
Books	<ul style="list-style-type: none"> • Early literacy exposure • Parents can practice using books in a more focused and interactive manner
Snack	<ul style="list-style-type: none"> • Parents can practice using a daily routine to model and elicit targets • Child is exposed to and can use targets in a functional manner • “Wakes up” the oral motor system • *** Highly motivating ! ***

PARENT- CHILD MOTOR SPEECH PROGRAM Session Components

Component	Rationale
Homework	<ul style="list-style-type: none"> • Parents can practice specific strategies and activities • Provides child with more opportunities for producing multiple repetitions and distributed practice • Improves carryover outside of the clinic

PARENT- CHILD MOTOR SPEECH PROGRAM SCREENING EVALUATION

Observe child's :

1. Speech learning skills
2. Speech characteristics
3. Speech motor control



Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia

PARENT-CHILD MOTOR SPEECH PROGRAM
SCREENING CHECKLIST

Play and Star - Early Speech Checklist

Child's Name: _____ Parent's Name: _____ Date: _____
D.O.B.: _____ Age: _____ Sex: _____

Activity	Target Words	Target Words	Target Words
Form Objects	pig	cow	horse
	horn	rook	owl
	door	bee	
Bubbles	bubble	blow	up
	high	pop	down
	open	more	
Puzzles in a bag	bag	hand	one
	on	that	here
	yes	no	out
Cars and ramp	car	go	up
	down	race	fast
	off		
Doll House	Mummy	Daddy	baby
	boy	girl	bed
	Te	top	right/left
	eat	bath	under
Block	open	juice	water
	pour	cup	in
	cookie	jam	eat
	more	me	done

SPEECH LEARNING SKILLS
SET THE SCRIPT FOR LEARNING – “STOP-LOOK-LISTEN-IMITATE”

Engage child in activity & develop turn-taking routine

↓

Establish looking at the speaker

↓

Establish imitation of a motor gesture or play action initially spontaneously → on request

↓

Establish imitation of vocal model or oral motor gesture, initially spontaneously → on request

↓

SPEECH LEARNING SKILLS
SET THE SCRIPT FOR LEARNING – “STOP-LOOK-LISTEN-IMITATE”

↓

Establish imitation of a verbal model initially spontaneously → on request

↓

Develop expectation of a verbal model →listen and watch for it

↓

STOP-LOOK-LISTEN- IMITATE

PARENT-CHILD MOTOR SPEECH PROGRAM
CHILD SPEECH AND LANGUAGE GOALS

Select functional core vocabulary that :

- Considers basic motor control parameters (based on the Motor Speech Hierarchy *Hayden and Square, 1994*)
- Expands upon the existing sound repertoire
- Expands upon the existing syllable shapes
- Is important to the child and parents

PARENT-CHILD MOTOR SPEECH PROGRAM
PARENT GOALS

To Develop:

- Understanding of their child’s goals
- Observation skills

To Learn:

- The “script for learning”
- Strategies for eliciting specific targets in daily interactions and activities
- Strategies for improving the accuracy of their child’s speech productions
- Strategies to facilitate communication & language



PARENT-CHILD MOTOR SPEECH PROGRAM
SAMPLE PARENT STRATEGIES

Establishing and maintaining joint attention

- Face to face, imitating child, bring objects to speakers face

Elicitation strategies

- Fill in the blank, choices, waiting expectantly, sabotage, communication temptations or controlled access

Cueing strategies

- Model target words and exaggerate specific sounds or movements, specific tactile, visual and verbal cues (e.g. big mouth!)

Feedback strategies

- Specific and general (KR, KP)

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia

CHILD PROFILE

DANIELA – DECEMBER 2009

2. Early Red Flags: (check all that apply):	September /09 CA 31 mos	December 2009 CA 34 mos
Dates:		
No prolonged phonation		
Inability to coordinate gestures and vocalization (e.g. may point, show, give but not vocalize)		
Use of non-speech sounds to communicate (e.g. tongue clicks, lip smacks, grunts) for word approximations.	✓	
Limited variety of speech sounds in repertoire (productions may be poorly differentiated (e.g. use /da/ for everything, no differentiated vowels).	✓	↔
Limited variety of speech motor movements (e.g., uses jaw as primary articulator).	✓	↔
Productions may be variable (e.g. may produce different sound combinations for the same word).	☹	↔
Is not imitating (e.g. sounds, vowels, words).	✓	
↔ Indicates improvements but continuing concerns		
☹ Indicates insufficient information to evaluate		

CHILD PROFILE

DANIELA – DECEMBER 2009/APRIL 2010

3. Speech Characteristics: (check all that apply):	September /09 CA 31 mos	December /09 CA 34 mos	April 2010 CA 38 mos
Dates:			
Restricted consonant inventory	✓	↔	
Limited vowel repertoire	✓	↔	
Vowel distortions	☹	↔	
Imprecise sound production/distortions	☹	✓	
Persistence of early phonological processes (beyond 36 months) e.g. final consonant deletion, reduplication, syllable deletion, assimilation	☹	↔	Note: Still stopping /t/ at 48 mos
Presence of atypical phonological processes e.g. initial consonant deletion, backing, stops produced as fricatives	☹		
Restricted syllable and word shapes	☹	↔	
Inconsistent errors on consonants and vowels on repeated productions of the same syllable or words	☹	↔	
Increased errors with increased word length and phonetic complexity	☹		
↔ Indicates improvements but continuing concerns			
☹ Indicates insufficient information to evaluate			

CHILD PROFILE

DANIELA – DECEMBER 2009/APRIL 2010

4. Motor Speech Control during Speech Production (check areas of concern)	September /09 CA 31 mos	December /09 CA 34 mos	April 2010 CA 38 mos
Dates:			
Phonation & Respiration			
• Adequate breath support	✓		
• Ability to sustain phonation	☹	↔	✓
• Production of controlled oral vs. nasal airstreams		↔	Contrast in blends
• Production of controlled voiceless airstream	☹	↔	✓
Jaw control:			
• Maintaining midline movement	☹		
• Using appropriate range of jaw excursion (no excessive or restricted excursion)	☹	✓	
• Graded movement	☹	✓	occasional
Lip Control:			
• Closure, independent of jaw	☹	↔	
• Appropriate strength for lip closure	☹		
• Rounding	☹	✓	
• Retraction	☹	✓	
• Individual lip movement (e.g. /t/)	☹	↔	✓
☹ Indicates insufficient information to evaluate			

CHILD PROFILE

DANIELA – DECEMBER 2009/APRIL 2010

4. Motor Speech Control during Speech Production (check areas of concern)	September /09 CA 31 mos	December /09 CA 34 mos	April 2010 CA 38 mos
Dates:			
Tongue:			
• Tongue tip elevation independent of jaw	☹	✓	
• Mid tongue control	☹	✓	
• Back tongue control	☹	✓	
Gripping for articulatory postures	☹	✓	
Inconsistent voicing errors	☹	✓	
Supra segmental errors (e.g. flat intonation, choppy prosody, stress on wrong syllable)	☹		
Altered pitch, rate, loudness, nasality	☹	✓	
☹ Indicates insufficient information to evaluate			

CHILD PROFILE

LIAM – JULY 2010 (CA 26mos)

- Poor awareness of speaker as a speech model
- Reluctance to imitate motor actions on request
- Refusal to imitate any new words / sounds
- Does not sing, hum, make animal / vehicle noises
- 2 words and 15+ signs after completion of Target Word®
- Limited consonant, vowel and syllable repertoire : / m, ə /
- Using gestures and grunting to communicate

CHILD PROFILE

LIAM - JULY 2010 (CA 26 MONTHS)

2. Early Red Flags: (check all that apply):	Dates:	July 2010 CA 26 mos
Dates:		
No prolonged phonation		✓
Inability to coordinate gestures and vocalization (e.g. may point, show, give but not vocalize)		✓
Use of non-speech sounds to communicate (e.g. tongue clicks, lip smacks, grunts) for word approximations.		✓
Limited variety of speech sounds in repertoire (productions may be poorly differentiated (e.g. use /da/ for everything, no differentiated vowels).		✓
Limited variety of speech motor movements (e.g., uses jaw as primary articulator).		✓
Productions may be variable (e.g. may produce different sound combinations for the same word).		☹
Is not imitating (e.g. sounds, vowels, words).		✓
↔ Indicates improvements but continuing concerns		
☹ Indicates insufficient information to evaluate		

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia

Sample Weekly Practice Sheet
Week: 5

Name: **Liam** Date: **September 2010**

Child's Goals	Comments
1. Improve speech learning skills 2. Improve basic motor control to facilitate establishment of a functional core vocabulary • Jaw control - open/close • Phonation control - on/off, oral/nasal, VOT • Lip control - closure/rounding • Tongue control - jaw assisted 3. Expand syllable shapes (CV, VC, CVCV, CVC) 4. Expand phoneme repertoire	
Parent Strategies: 1. Face to face 2. Establish turn-taking 3. Hold object to mouth and model word 4. Provide opportunities - multiple repetitions 5. Cueing - verbal cues (eg "use your mouth")	
Station 1: Puzzles - Toy of the Week Child's Words: More 0 0 0 0 0 0 0 0 On 0 0 0 0 0 0 0 0	Station 2: Feed a puppet Child's Words: (y)um 0 0 0 0 0 0 0 0 more 0 0 0 0 0 0 0 0
Station 3: Playdoh Child's Words: more 0 0 0 0 0 0 0 0 hole 0 0 0 0 0 0 0 0	Station 4: Eggs Child's Words: open 0 0 0 0 0 0 0 0 hop 0 0 0 0 0 0 0 0
Station 5: Gears (wheels) Child's Words: On 0 0 0 0 0 0 0 0 Wheel 0 0 0 0 0 0 0 0	Station 6: Barnyard Bingo Child's Words: Open 0 0 0 0 0 0 0 0 hole 0 0 0 0 0 0 0 0

CHILD PROFILE

LIAM – OCTOBER 2010 (CA 29 MONTHS)

2 Early Red Flags (check all that apply)	Dates	July 2010 CA 26 mos	October 2010 CA 29 mos
No prolonged phonation		✓	
Inability to coordinate gestures and vocalization (e.g. may point, show, give but not vocalize)		✓	
Use of non-speech sounds to communicate (e.g. tongue clicks, lip smacks, grunts) for word approximations		✓	
Limited variety of speech sounds in repertoire (productions may be poorly differentiated (e.g. use /du/ for everything, no differentiated vowels)		✓	↔
Limited variety of speech motor movements (e.g., uses jaw as primary articulator)		✓	↔
Production may be variable (e.g. may produce different sound combinations for the same words)		⊖	✓
Is not initiating (e.g. sounds, vowels, words)		✓	
↔ Indicates improvements but continuing concerns			
⊖ Indicates insufficient information to evaluate			

CHILD PROFILE

LIAM – OCTOBER 2010 (CA 29 MONTHS)

3 Speech Characteristics (check all that apply)	Dates	July 2010 CA 26 mos	October 2010 CA 29 mos
Restricted consonant inventory		✓	✓
Limited vowel repertoire		✓	✓
Vowel distortions		⊖	✓
Imprecise sound production/distortions		⊖	✓
Persistence of early phonological processes (beyond 36 months) e.g. final consonant deletion, reduplication, syllable deletion, assimilation		⊖	✓
Presence of atypical phonological processes e.g. initial consonant deletion, backing, stops produced at fricatives		⊖	✓
Restricted syllable and word shapes		⊖	✓
Inconsistent errors on consonants and vowels on repeated productions of the same syllables or words		⊖	✓
Increased errors with increased word length and phonetic complexity		⊖	✓
⊖ Indicates insufficient information			

CHILD PROFILE

LIAM – OCTOBER 2010 (CA 29 MONTHS)

4 Motor Speech Control during Speech Production (check areas of concern)	Dates	July 2010 CA 26 mos	October 2010 CA 29 mos
Phonation & Respiration			
• Adequate breath support			⊖
• Ability to sustain phonation			⊖
• Production of controlled oral vs. nasal airstreams			✓
• Production of controlled voiceless airstream			✓
Jaw control			
• Maintaining midline movement			⊖
• Using appropriate range of jaw excursion (no excessive or restricted excursion)			✓
• Graded movement			⊖
Lip control:			
• Closure, independent of jaw			⊖
• Appropriate strength for lip closure			✓
• Rounding			⊖
• Retraction			⊖
• Individual lip movement (e.g. /f/)			✓
⊖ Indicates insufficient information			

CHILD PROFILE

LIAM – OCTOBER 2010 (CA 29 MONTHS)

4 Motor Speech Control during Speech Production (check areas of concern)	Dates	July 2010 CA 26 mos	October 2010 CA 29 mos
Tongues:			
• Tongue tip elevation independent of jaw			⊖
• Mid tongue control			✓
• Back tongue control			⊖
Graping for articulatory postures			⊖
Inconsistent voicing errors			⊖
Supra segmental errors (e.g. flat intonation, choppy prosody, stress on wrong syllable)			⊖
Altered pitch, rate, loudness, nasality			⊖

Ontario AHC's Preschool Speech and Language Program
Special Population - Motor Speech Workshop 2010

PARENT- CHILD MOTOR SPEECH PROGRAM FOLLOW-UP AND HOME PROGRAM

On the last session:

- Progress is reviewed with each parent
- Response to Intervention is evaluated
- Home program suggestions are given or future intervention plan is discussed

→ Make recommendations re: consolidation or continued intervention based on severity

RESPONSE TO INTERVENTION

- Look for continued evidence of **red flags**
- Look for specific speech characteristics and motor control issues as identified in sections 3 and 4 of the checklist
- Evaluate child's readiness for direct motor speech therapy if need is determined

RESPONSE TO INTERVENTION SERVICE DELIVERY OPTIONS

No red flags remain
 No motor control or speech sound issues remain
 Language within normal range

↓

Discharge - appropriate outcomes

RESPONSE TO INTERVENTION SERVICE DELIVERY OPTIONS

No red flags or identified motor control issues remain
 Language, phonology or articulation issues remain

↓

Motor Speech no longer Primary area of concern

↓

Speech and Language Intervention to address child's needs

RESPONSE TO INTERVENTION SERVICE DELIVERY OPTIONS

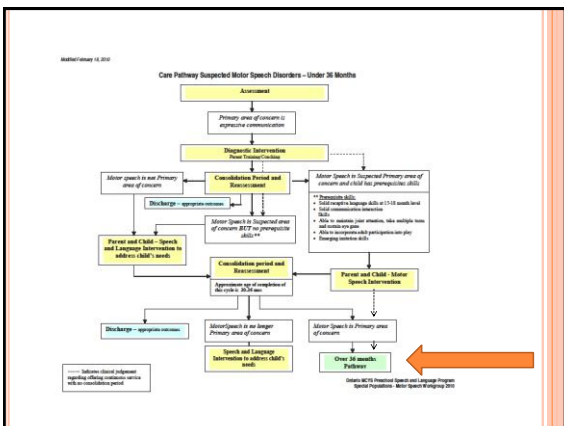
May have residual red flags
 Motor control and speech issues remain

↓

Motor Speech is Primary area of concern

↓

Over 36 month Pathway
 Start suspecting CAS



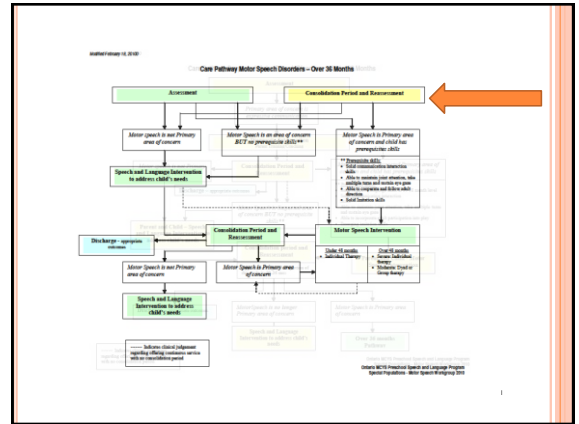
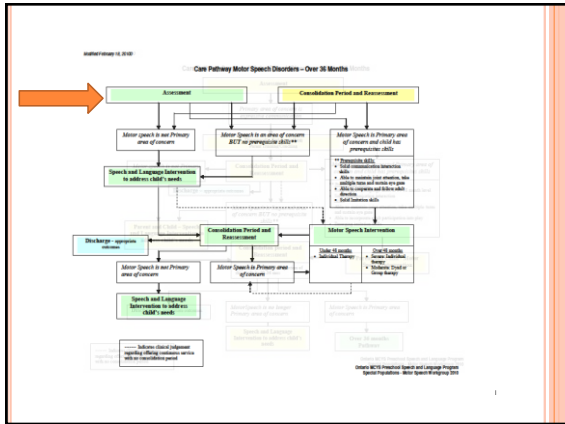
MOTOR SPEECH INTERVENTION

Presented by
 Robin Gaines, Ph.D. & Carol Theoret-Douglas, M.Sc.(A)
 Children's Hospital of Eastern Ontario
gaines@cheo.on.ca
ctheoretdouglas@cheo.on.ca

97

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia



IF CHILD DOES NOT HAVE PRE-REQUISITES FOR MOTOR SPEECH THERAPY....

Recommend:

- Therapy Readiness and/or
- Communication Interaction Therapy

IF PRE-REQUISITES FOR DIRECT MOTOR SPEECH THERAPY ARE PRESENT....

- 36 - 48 months, moderate or severe speech difficulties....
Recommend: Individual therapy
- >48 months, severe speech difficulties...
Recommend: individual therapy
- >48 months, moderate speech difficulties
Recommend: a dyad
Consider: group therapy

ESSENTIAL COMPONENTS OF MOTOR SPEECH THERAPY

- Direct treatment for child
- Direct instruction for parent
- Child-parent dyad coaching
(Let's Start Talking® Program, Hodge, 2007)

MOTOR SPEECH THERAPY CONSIDERATIONS (Maas et al, 2008)

- Motivation and Attention
- Goal Selection
- Treatment Techniques
- Feedback to Increase Awareness of Motor Control
- Conditions of Practice
- Service Model Considerations

Managing Suspected Childhood Apraxia of Speech: A Care Pathway

ASHA November 20, 2010 Philadelphia

Let's Start Talking™ Lesson Plan Notes
Megan Kelly & Janet Liu

Date: _____ Child: _____

Comments from caregiver about previous home activity:

Complete report of time spent on homework activities since last session:

Speech Training Targets:

A. LET'S MAKE SOUNDS or SOUND SEQUENCES

A. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

B. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

B. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

B. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

© 2007 University of Illinois and Children's Hospital of Eastern Ontario



C. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

B. SERVICE CONSIDERATIONS

A. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

B. Target: _____

Learning Activity (social interaction activities):

Initiation	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity	Stimulus	Response	Duration	Intensity

Comments: _____

What factors will variable practice be incorporated?
What strategies will be used to enhance child's self-monitoring awareness?
What techniques will be used to develop child's self-correcting strategies?
In which caregiver-child activity is done for better practice activity?

Goal for caregiver: _____
Goal for better practice activity for child: _____


Reflection on session - insights gained about child/learning/teach:
Goals for Next Session:

© 2007 University of Illinois and Children's Hospital of Eastern Ontario




TREATMENT TECHNIQUES

- Focused attention to the clinician's face
- Rate-accuracy trade off (Strand, 2006)
- Progress from maximal to minimal support and from imitative to functional use (Strand, 1999)
- Use multimodality cueing (Hayden, 2004)
- Integrate emergent literacy skills



FEEDBACK TO INCREASE AWARENESS OF MOTOR CONTROL

- Provide general feedback
- Provide frequent feedback
- Provide specific information on how a movement is made
- Develop repair/revision and self monitoring skills



CONDITIONS OF PRACTICE

- Provide multiple repetition of targets
- Practice within a functional context at word and phrase level
- Home activities should:
 - Replicate success from session
 - Be repeated often
 - Home activities can:
 - Be functional and meaningful within child's daily activities

SERVICE MODEL CONSIDERATIONS

Frequency and Length of Intervention

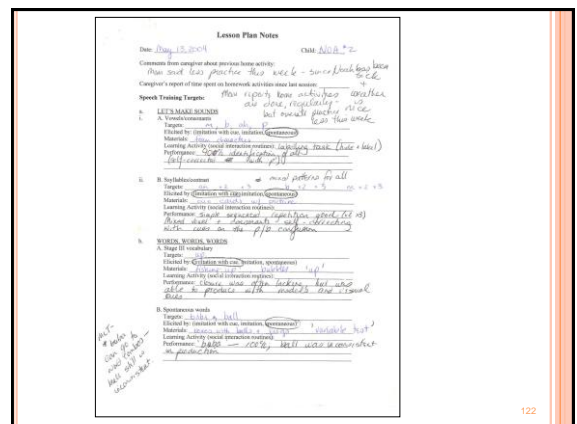
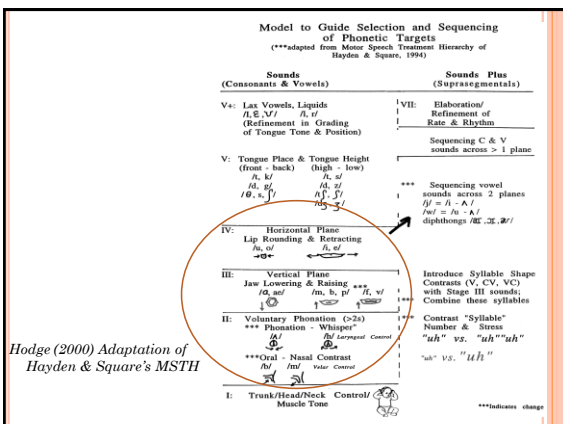
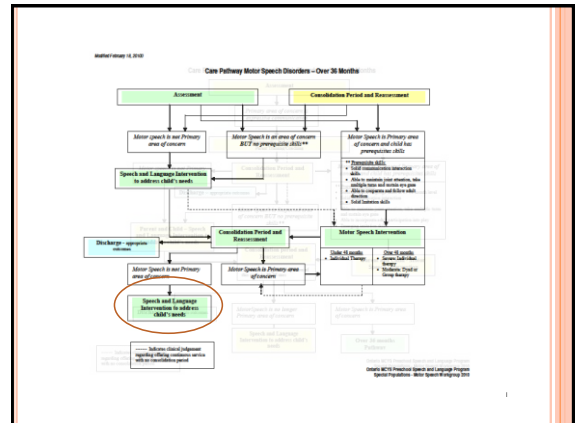
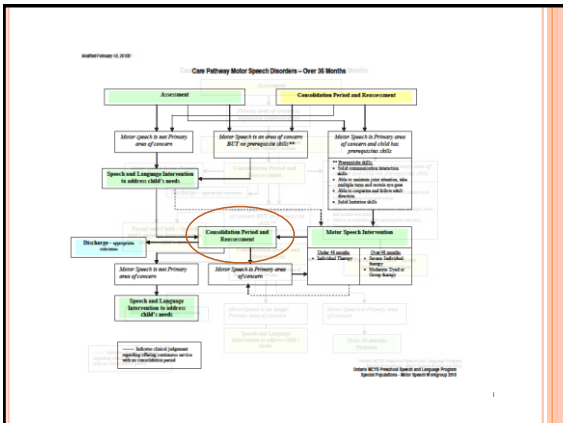
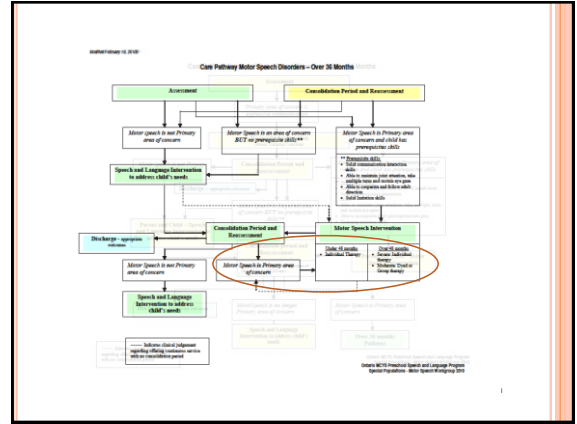
- Current literature suggests **shorter and more frequent** therapy sessions
- ASHA (2007) recommends 3 to 5 sessions per week
- Positive changes noted for children with suspected motor speech disorders with 45 minute therapy sessions, 2 times/week for 8 weeks (Gaines and Hodge, 2008)
- Children with motor speech disorders require more intervention

RTI - SERVICE MODEL CONSIDERATIONS

CONTINUOUS THERAPY VS. TREATMENT BLOCK

Decision should be based upon factors such as:

- SLP is needed for child to develop skills
- SLP is needed for child to maintain skill
- Child is continuing to make gains
- Child's progress has plateaued and child/family need a break
- Family's ability to support ongoing program two times a week



REFERENCES

- Hayden, D. & Square, P.A. (1994). Motor speech treatment hierarchy: A systems approach. In P.A. Square (ed.), *Developmental apraxia of speech: Intervention. Clinics in Communication Disorders*, 4(3), 162-174.
- Hayden, D. (2004). PROMPT: A tactually grounded treatment approach to speech production disorders. In I. Stockman (ed.), *Movement and Action in Learning and Development: Clinical Implications for Pervasive Developmental Disorders* (pp 255-297). San Diego: Elsevier Academic Press.
- Hodge, M. (2007). *Let's Start Talking Clinician's Manual*. University of Alberta, Edmonton, AB.
- Hodge, M., Gaines, R., Brush, S., Campbell, J., Leblanc, A., Lin, S., Taschereau-Park, M. L., Tallon, S., Beaupre, J., Korol, R., Robinson, L. (November 2005) Evidence-Based Evaluation of a Program for Severe Speech Delay. Poster presentation to the American Speech/Language Hearing Association Conference, San Diego.
- Maas, E., Robin, D., et al. (2008). Principles of motor learning in treatment of motor speech disorders. *American Journal of Speech-Language Pathology* 17, 277-298.

REFERENCES

- Olswang, L. B., Rodriguez, B., Timler, G. (1998) Recommending Intervention for Toddlers with Specific Language Learning Difficulties: We May Not Have All the Answers, But We Know a Lot. *American Journal of Speech-Language Pathology*, Vol. 7, No. 1, 23-32.
- Pukonen, M., Grover, L. (2005). Speech Intervention for Young Children: A Parent-Child Program Model. Poster session presented at the annual conference of the Ontario Association of Speech-Language Pathologists and Audiologists, Peterborough, Ontario.
- Richter, L. (2004). *The importance of caregiver-child interactions for the survival and healthy development of young children*. Geneva: World Health Organization.
- Sampson Graner, P., Faggella-Luby, M., Fritschmann, M. (2005). An overview of responsiveness to intervention: What practitioners ought to know. *Topics in Language Disorders*, 25 (2), 93-105.
- Strand, E.A., Skinder, A. (1999) Treatment of developmental apraxia of speech: Integral stimulation methods. In A.J. Caruso & E.A. Strand (ed), *Clinical Management of Motor Speech Disorders in Children*. (pp 109-148) New York: Thieme.
- Strand, E.A., Stoeckel, R., Baas, B. (2006). Treatment of severe childhood apraxia of speech: A treatment efficacy study. *Journal of Medical Speech-Language Pathology*, 14(4), 297-307.