Intervention for Differentially Diagnosed Subtypes of Speech Disorder

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*Intervention for Children with Speech Impairment is a Problem*

**Incidences:** Around 6% of all children have a functional speech disorder that affects their academic (particularly literacy) and social achievement. Children with speech or speech and language difficulties constitute around 70% of referrals to pediatric clinics.

**Heterogeneity:** These children differ from one another in terms of severity, types of speech errors made, consistency, associated difficulties, causal and maintenance factors, reaction to their disorder and response to intervention.

**Specific Questions**

- How should this population be classified into subgroups of speech impairment?
- What sort of assessment is needed to differentially diagnose subgroups?
- Do different subgroups require different intervention strategies?

**Differential diagnosis of speech disorders**

**Articulation disorder (10% of children with speech difficulties)**

*Assessment:* Dynamic assessment of the production of phones indicates that some productions may be perceptually inaccurate. Oro-motor assessment is necessary to determine whether this difficulty is due to lack of integrity of structure and function of the oro-motor mechanism. Diagnostic categories of articulation disorder are: dysarthria, structural anomaly, mis-learned motor pattern (e.g. lisp). Articulation impairment can co-occur with phonological disorder.

*Intervention:* For mis-learned motor pattern: Van Riper articulation therapy: discrimination, production in isolation, CV nonsense syllables, real words, sentences, generalization. *Service Delivery:* Group (60 minute) or individual (30 minute) sessions, 6 years + (quicker and better outcome), weekly or twice weekly scheduling, trained agents of intervention achieve as much as SLPs.

*Bilingual Children:* Articulation therapy in English transfers to other language.

**Delayed phonological acquisition (60% of children with speech difficulties)**

*Assessment:* All speech errors typical of a child of a younger chronological age, as determined by an assessment that has local normative data on error patterns. Co-occurrence of an articulation disorder is not uncommon. Delay may possibly due to the language learning environment, or a general mild delay.

*Intervention 1:* Whole language; intensive; Bilingual Children: Transfer* Bilingual Children: No transfer.
Consistent speech disorder (20% of children with speech difficulties)

Assessment: At least one error pattern that is atypical of typical phonological acquisition (e.g., backing, favorite sound, ICD) as determined by an assessment that has local normative data on error patterns. Most children also have some delayed patterns; a few have co-occurring articulation disorder.

Intervention: Phonological contrast (e.g. Metaphon, minimal or maximal pairs), (2x) weekly, fortnightly, Bilingual Children: No transfer to other language.

Inconsistent speech disorder (10% of children with speech difficulties)

Assessment: Three elicitations of the same (25) lexical items in the same phonetic context to determine the extent of inconsistent production (>40% is the arbitrary criterion for inconsistency: based on normative data and data from other groups of children with speech disorder)

Intervention: Core Vocabulary. Service Delivery: Individual, twice weekly, SLPs. Bilingual Children: Transfers to other language.

Childhood Apraxia of Speech (CAS) (Rare)

Impaired voluntary speech production characterized by disturbance of rate, prosody, oro-motor signs (e.g. groping), consistency, more errors in imitation than spontaneous production.

Assessment: Detailed oro-motor standardized assessment, eg., VIMPAC


Intervention Approaches: Subgroup and Speech Targets

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Target</th>
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<tbody>
<tr>
<td>Articulation</td>
<td>Speech sound in isolation (artic)</td>
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<tr>
<td>Phonological Delay</td>
<td>Whole language or Error pattern</td>
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<tr>
<td>Consistent Phonological Disorder</td>
<td>Error pattern (min or max)</td>
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<tr>
<td>Inconsistent Phonological Disorder</td>
<td>Whole word (core vocab)</td>
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<tr>
<td>CAS</td>
<td>Phonetic oro-motor gesture (PROMPT)</td>
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</tbody>
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Conclusions

Given that most children referred for SLP assessment have a speech difficulty, research needs to determine:

- Ways of classifying speech subtypes
- The most cost-effective intervention approach for each subtype
- The service delivery model that maximizes outcome e.g. agent, dosage, scheduling, site……

References.

1. Dodd, B. & McIntosh, B. (in press) The input processing, cognitive linguistic and oro-motor skills of children with speech difficulty. Advances in Speech Language Pathology


