

# What we know about: Speech sound disorders and treatment

## Prevalence:

- Speech sound production difficulties affect up to:
  - 10-15% of children in pre-school
  - 6% of children in lower primary school
- Speech or speech and language difficulties in children constitute 70% of referrals to speech pathology services
- Very heterogeneous group

## Dodd's subtypes of speech sound disorders:

Subtype	Prevalence	Description
<b>Articulation Disorder</b>	10% (0.6% pop)	Diagnostic categories include dysarthria, structural anomaly, mislearned motor patten (eg lisp). Treatment after 6yo is quicker and yields better results. <i>Indicated Intervention:</i> Speech sound in isolation (articulation therapy)
<b>Delayed Phonological Acquisition</b>	60% (3.6% pop)	All sounds errors typical of a child of a younger chronological age. Comorbid articulation disorder, language and global delays are not uncommon. <i>Indicated Intervention:</i> Whole language or error pattern.
<b>Consistent Speech Disorder</b>	20% (1.2% pop)	At least one error pattern is atypical of expected phonological acquisition (backing, ICD). Delayed phonological patterns generally co-occur. <i>Indicated Intervention:</i> Error pattern (Minimal or maximal pairs)
<b>Inconsistent Speech Disorder</b>	10% (0.6% pop)	Inconsistent production of >40% based on three elicitations of the same lexical items in the same phonetic context. <i>Indicated Intervention:</i> Whole word (core vocabulary)
<b>Childhood Apraxia of Speech</b>	Rare (up to 1 in 1000)	Lifelong disorder. Consonants and vowels equally effected. Characterised by disturbance of rate, prosody, oro-motor skills, consistency and errors in imitation rather than spontaneous production. <i>Indicated Intervention:</i> limited evidence regarding treatment efficacy

## Intensity and duration of intervention:

Law, Garrett and Nye's (2010) systematic review of the literature indicated that there was some support for the effectiveness of interventions focusing on speech sounds.

Differential diagnosis is crucial as each subtype of speech sound disorder requires a different approach to intervention and different intensity of service provision for long term impact.

Short-term gains in speech intelligibility have been demonstrated in response to low intensity, time limited interventions ie. 6hrs of intervention over 6mths.

### **Association with literacy difficulties:**

There is widespread agreement that there is an association between speech disorders and either literacy skills attainment difficulties and/or poorer educational outcomes. It is important to note that many children with speech disorders learn to read and spell without difficulty. Association does not imply causality.

Estimates of the extent of this association varies, with identified rates of co-morbid speech sound disorders and literacy difficulties of between 30% and 77%.

Success with learning and literacy development is attributed to a range of factors including the type and severity of the speech sound disorder, and the presence of developmental and psychosocial comorbidities.

Some studies indicate that the significance of a history of developmental speech sound delays on literacy and learning lessens as children progress through primary school.

Inconsistent Speech Disorder and Consistent Speech Disorders (ie. disorders with atypical sound errors) are increasingly associated with persistent literacy acquisition difficulties in both reading and spelling domains.

Factors that significantly increase the likelihood that a child with speech errors will also have difficulties with literacy and learning include:

- Errors in vowel production
- Poor receptive language skills
- Low non-verbal IQ
- Poor phonological awareness
- Family history of learning difficulties
- Persistent speech difficulties (into primary school)

### **References:**

- Broomfield, J. & Dodd, B. (2011) Is speech and language therapy effective for children with primary speech and language impairment? Report of a randomised control trial. *International Journal of Language and Communication Disorders*.46-6, 628-640
- Dodd, B. (2007) Intervention for Differentially Diagnosed Subtypes of Speech Disorder. *American Speech-Language-Hearing Association Convention*. Seminar 1206
- Holm, A., Farrier, F., & Dodd, B. (2008) Phonological awareness, reading accuracy and spelling ability of children with inconsistent phonological disorder. *International Journal of Language and Communication Disorders*. 43-3, 300-322
- Law, J., Garrett, Z., & Nye, C. (2010) Speech and language therapy interventions for children with primary speech and language delay or disorder. *Cochrane of systematic Reviews*
- Leitao, S. & Fletcher, J. (2004) Literacy outcomes for students with speech impairment: long-term follow-up. *International Journal of Language and Communication Disorders*. 39-2. 245-256
- McCabe, P., Ballard, K., Morgan, A., Murray, E., Purcell, A., Thomas, D., McKechnie, J., & Lim, J. (2014) Childhood Apraxia of Speech: Prevalence, prognosis and services. *Submission to the Australian Government Senate Inquiry Regarding Prevalence of Different Types of Speech, Language and Communication Disorders and Speech Pathology Services in Australia*
- McLeod, S., McCormack, J., & Daniel, G. (2014) Evidence of the social cost of failing to treat communication disorder. *Submission to the Australian Government Senate Inquiry Regarding Prevalence of Different Types of Speech, Language and Communication Disorders and Speech Pathology Services in Australia*.