



GOOD PRACTICE GUIDELINES FOR TRANSCRIPTION OF CHILDREN'S SPEECH SAMPLES IN CLINICAL PRACTICE AND RESEARCH

Introduction

Children with speech disorder form a large part of the community paediatric caseload for speech and language therapists (SLTs). These children differ widely in their speech patterns, severity and underlying or accompanying difficulties. It is the role of speech and language therapy for such children "to identify the nature of the delay or disorder by assessing the pattern of the articulation and phonological template used by the child" (RCSLT, 2009, p 7).

RCSLT's web-based clinical resources on *Developmental Speech Difficulties* recommends that intervention should be provided "primarily by an SLT with developed expertise in complex and severe speech disorder." This is important to ensure that the SLT has the necessary expertise to effectively transcribe and analyse all aspects of the phonetic and phonological presentation of a child presenting with complex speech sound disorders.

It is clear that fulfilment of this role requires profession-specific competency in the phonetic transcription of normal and disordered speech. This paper sets out a framework for the development, maintenance and application of transcription skills.

A Why it is necessary to transcribe

Child based perspective

Transcription informs every decision we take about intervention for a child when we tackle their speech sound problem. By carrying out and examining a transcription we come to understand a child's speech profile, what we should do and what else we need to know.

Transcription of a speech sample is necessary

- for differential diagnosis
 - for example of articulation versus phonological disorder; of developmental verbal dyspraxia (DVD-also known as Childhood Apraxia of Speech or CAS) versus

Good practice guidelines for transcription of children's speech inconsistent phonological disorder

- to establish the nature and extent of a child's difficulty,
 - as a necessary precursor to inform further phonological and psycholinguistic analyses and thereby decide on targets for intervention
- for management / service delivery decisions
 - for example whether SLT is necessary; whether therapy or surgery is indicated for children with oral structural anomalies; whether some degree/type of hearing impairment might be indicated and need further multi-disciplinary investigation
- for selection of intervention approach and targets
 - detailed transcription and subsequent analysis permits identification of the most effective and efficient choice of intervention and targets matched to the child's needs such that intervention time and cost can be minimised
- for measuring change and/or effectiveness
 - to provide the raw data for outcome measures such as percent consonants correct; comparing change from baseline or change in treated versus untreated targets; to examine generalisation into connected speech. In the field of cleft palate it is mandatory for regional centres to measure speech outcomes, and narrow transcription is fundamental within both the clinical and audit programme (Sell et al, 2009)

Professional perspective

Phonetic transcription ability is a skill unique to SLTs among the healthcare and education professions; no-one else can provide this information about a child's speech. It is information that is essential to good practice and we need to use the skills inherent in our training in order to provide it.

Phonetic transcription supports report-writing and information transfer by providing concrete information to other SLTs, not only when staff leave but also when children are seen by more than one SLT for example those attending both local and tertiary settings.

Transcription requires a high level of skill and continued practice in transcription is necessary to develop and maintain accuracy. It is particularly important to be confident in using the full set of IPA and if necessary ExtIPA, symbols when treating children with structural/neurological or hearing impairment or non-native English speakers, where phonetic-level variation from standard speech is likely.

What happens if we don't transcribe speech or do not transcribe it accurately?

If SLTs do not provide an accurate transcription of an appropriate speech sample, no-one else will. There will be a risk of:

- misdiagnosis and inappropriate management decisions;
 - children with inconsistent phonological disorder benefit from a different intervention approach than children with DVD or consistent phonological disorder (Crosbie et al. 2005)
- incorrect target choice
 - narrow phonetic transcription is necessary to reveal where children are marking phonological contrasts by subtle phonetic distinctions (Bauman-Waengler, 2011)
 - knowledge and appropriate and accurate use of the whole IPA, including relevant diacritics and non-English sounds, helps identify the degree of closeness of a child's realisations to the target and the contrastiveness of their speech sound system

Good practice guidelines for transcription of children's speech

- ineffective or inefficient therapy
 - which has direct implications for children, their education and their families, and for commissioning and contracting
- not demonstrating progress objectively
 - therefore leading to failure to demonstrate value of intervention, again with implications for service commissioning and contracting
- inadequate records
 - will not enable continuity of care across therapists or services; insufficiently specific records could potentially have serious medico-legal implications.

In the absence of transcription, SLTs will not be equipped to provide direct speech work, nor even appropriate advice for indirect intervention. Assessment without transcription leaves us equipped only for very general consultancy advice or work on listening and attention. This can seriously undermine our contribution within multidisciplinary/educational fora.

B When, how and what to transcribe

When?

Any child at initial assessment with any speech difficulty needs transcription of a speech sample. Where the speech problems occur in young children in the context of wider communication problems, and speech is not the priority for intervention, it will be useful to transcribe a brief sample in order to confirm that decision and to provide a baseline statement of articulatory/phonological development. A very limited phonotactic range at early single word level of development may impact on expressive vocabulary development and we need to identify and monitor the issue, or target the development of vocabulary characterised by target phonemes.

When your clinical judgement is that speech becomes the intervention target, then a detailed assessment and transcription of speech is essential at that point and at regular intervals for measurement of change.

How?

Live transcription is necessary whenever possible during a clinical assessment (i.e., for single words, and for specific targets produced in a sentence context). It is the most time-efficient way of obtaining the data and benefits from the maximum auditory and visual information.

The speech sample should also be recorded to allow checking of single word data and because repeated listening to a recording is necessary for connected speech.

Transcription must be fit and sufficient for purpose. Whether to use broad (phonemic) or narrow transcription will depend on what is required to describe the child's speech patterns; specialists in speech disorders will use both routinely. Narrow phonetic transcription is recommended to capture the subtleties of the speech of deaf children (Teoh & Chin, 2009) and is the standard of care for cleft speech (Gibbon, Ellis & Crampin, 2004). The decision making and assessment process is outlined in the flowchart and description below.

The transcription of a child's speech is an important part of assessment data and will be filed in the child's case notes. Optimally high quality digital audio and/or video recordings of the speech sample should be collected on a routine basis. Legally this forms part of the child's health record and should be stored securely, and retained according to local guidelines. It is important to ensure recordings are systematically archived in order to facilitate retrieval as required. This provides a valuable

Good practice guidelines for transcription of children's speech archive of longitudinal data which can provide a rich resource for building the evidence base, and indeed recordings are essential to ensure inter- and intra-rater reliability and thereby control for bias in research studies. At a clinical level, recordings might allow for transcription by more experienced colleagues for review of transcription accuracy or detail.

Consent is a central tenet of all forms of healthcare, and a range of guidance documents have been published by the Department of Health, which should be consulted for details of the law and good practice requirements. This equally applies to audio or video recordings. Consent can be documented either through the use of a consent form which is then filed in the Health records or through documenting in the child's notes that oral consent has been given. If however, recordings are to be used for education, publication or research purposes, consent must be in writing. Standard consent forms are available on the Department of Health website, but also be aware of any guidance on consent issued by the RCSLT, and the local Trust's policy.

What?

Assessment of a child will cover a range of contexts, from the waiting room to the clinic to home or school. This paper focuses only on those elements of assessment which should potentially be transcribed (see flowchart at the end of the document).

1 Preliminary data should consist of:

a) A screening list of words, derived by picture naming (not imitation). Baker and McLeod (2014) recommend at least 100 words with all phonemes targeted in each possible syllable position with a representation of different word shapes, lengths and stress patterns. The screening list should also have the potential to assess for variability through assessing each consonant in each word position in a range of contexts. Some current published assessments would fulfil these criteria. Transcribe live.

AND

b) A small amount of connected speech, i.e. sentences where you know the context and likely content. What is important is to ensure that as a minimum, sufficient connected speech is sampled in order to determine the degree to which intelligibility is compromised and also, the impact of segmental and suprasegmental features. A connected speech sample will also allow you to consider the impact of the child's speech sound disorder on other domains of language and vice versa (Baker and McLeod 2014).

The sample of connected speech needs to be recorded. It may not be necessary to transcribe the sentences if it is clear that the child has only a very straightforward constrained error pattern, or their speech difficulties are too mild to warrant therapy. If the child's problem is extremely severe or containing many phonetic-level differences, an inexperienced therapist may need help in transcribing from a specialist colleague.

2 If the child requires intervention for their speech sound disorder, the single word and connected speech sample should allow you to identify a priority target (for example a single sound, a class of sounds, a process or a specific word position). It is then necessary to:

a) Transcribe further words within your chosen target areas. This 'probe' list should put the target sound/s in different phonetic contexts and in words with different numbers of syllables and should test repeated production of some words several times.

b) Assess and transcribe stimulability of target sounds in isolation and in nonwords

3 It is then necessary to record a larger connected speech sample (for example a narrative or genuine conversation). Listen and transcribe excerpts if they show up features not in evidence in

Good practice guidelines for transcription of children's speech the single word sample. The literature is highly variable in its recommendations for the length of a sample of connected speech; for example Bauman-Waengler (2011) suggests three minutes of conversational speech; Stackhouse et. al. (2007) look at word boundary effects in 48 sentences; Klinto et. al. (2011) compared single word versus connected speech accuracy using 13 sentences. To summarise, usage in studies and guidance to date has ranged from ten sentences to several minutes of conversational speech.

It is also important to recognise that there are different methods of collecting connected speech samples including sentence repetition, conversation, picture description and narrative sampling. Each of these will produce variations in speech production which should be borne in mind during analysis.

The transcription decision making tree at the end of this document summarises the points in this section and provides a useful reference to guide clinicians and researchers regarding when and what to sample and transcribe.

It's not just about consonants

It is as necessary to transcribe vowels accurately as it is consonants. It is important to consider the potential influence of vowel context on consonant production as well as errorful vowel realisations. The child's speech sample should therefore also allow the SLT to consider how the child realizes vowels in a range of contexts in relation to: place (high versus low; back versus front); monophthongs versus diphthongs; and how vowels are influenced by /ɹ/ in both non-rhotic and rhotic accents. Vowel errors can have a serious effect on intelligibility and are often an indicator of a more complex speech sound disorder (Strand in Shriberg et al. (2012)).

Why do we need connected speech?

- Use of sounds may be different in single words and connected speech, for example there may be simplification of syllable and word structure, but also addition of sounds (such as glides, or glottal stops) to separate vowels where there is much omission of target consonants. There may be exacerbated use of the processes seen in single words, or additional processes may become apparent.
- Errors may occur across word boundaries.
- There are suprasegmental features (prosody, resonance, voice) which operate across utterances.
- Connected speech should be the basis for intelligibility assessment.

C Tools, skills and resources for transcription

Equipment

- Paper & pencil & rubber.
- A good quality digital audio-recorder available for all therapists so that a sample can be recorded in any session as required.
- A video-recorder, tripod and high quality microphone for each team.
 - Video recording gives access to additional information about a child's movements which cannot always be noted when transcribing live
 - Video-recording can be used with more severe cases to allow involvement of a specialist clinician

Good practice guidelines for transcription of children's speech particularly where visual aspects of speech may be key to intelligibility such as with deaf children (Parker & Kersner 1997)

- Audio quality of video cameras can be inadequate; use a camera with an external microphone socket and plug in a high quality microphone. There are guidelines within the cleft palate field (www.clispi.org).
- Advances in technology have resulted in reduction in costs of this type of equipment combined with ease of use and portability.

Personnel and skill-mix

Both RCSLT and HCPC rightly recognise the importance of phonetics in training SLTs. Newly qualified clinicians enter the profession with a baseline threshold competency in transcription which will need regular practice to be maintained and enhanced.

Indeed, we recommend that CPD opportunities should be provided and pursued to allow for regular phonetics transcription 'top-ups' in order to help clinicians maintain and build on this vital skill.

More experienced colleagues with developed skills should be able to support and advise on complex cases.

In-service training should be used to enhance skills across a team, allowing discussion and 'calibration' of transcription for children with unusual speech characteristics.

Time

How can adequate transcription be fitted into the time constraints of clinical practice? By taking the approach set out in the flowchart. The type of transcription depends on the complexity of the child's problem and the stage and purpose of assessment.

Resources

Specific items are not generally listed in this paper as ongoing developments will render links and examples out of date. However the following are useful resource ideas which can be identified through on-line searches:

- The IPA chart.
 - Also extIPA symbols for disordered speech.
 - 'Speaking' IPA charts, giving audio-files of spoken examples of each sound or symbol.
 - 'Seeing Speech' (Lawson et al. 2015). Available at: <http://seeingspeech.ac.uk>
- Training samples for transcription practice, eg Webfon (search on phonetic transcription self-practice).
- Phonetic and audio analysis packages (search on phonetic analysis packages).
- Checklist for connected speech features.

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Contributors

These guidelines have been compiled by the members of the Child Speech Disorders Research Network (formerly the UK and Ireland Specialists in Specific Speech Impairment network (SSSI Network)).

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A panel paper based on these guidelines was presented at the International Clinical Linguistics and Phonetics Association conference in Cork, Ireland in June 2012. Comments made by the audience during the discussion following this presentation have been incorporated into the document.

These guidelines were revised in 2016 and updated by the Child Speech Disorder Research Network. Members who had joined the network since 2013 and who contributed to these revisions were:

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Transcription decision-making tree

