

## Cleft Speech Therapy Timeline

(Timeline may need adjustment based on local constraints)

### **Infants and Toddlers (0-3 years)**

*During this age, Speech Language Pathologists (SLPs) should instruct parents how to be the “therapist” at home, as parents naturally become a child’s first language instructor. SLPs should teach parents how to encourage good speech habits and recognize the development of bad speech habits—establishing preventative therapy for the patient both before and after surgery.*

- **Infant and Toddler Sound Development**
  - Babies with cleft palates show deficits in the size and composition of their early sound inventories
    - Early deficits affect speech accuracy and vocabulary size as the child develops
  - Babbling of a non-cleft baby consists of plosive consonants /p/, /b/, /t/, /d/, /k/, /g/ as well as nasal sounds of /m/ and /n/, and other consonants including /w/ and /y/
    - Babbling for babies with cleft palate usually consist of the nasal sounds /m/ and /n/ and /w/ and /y/, as they require minimum breath pressure
- **Early Therapy**
  - Most experts recommend cleft palate repair at **8 to 18 months**
  - Following surgery, it is not uncommon to see a decrease in both the frequency and variety of a child’s vocalizations for up to **6 weeks**
  - Speech therapy can begin as early as **2 weeks** following surgery, if the patient feels well and the surgeon agrees
  - Following cleft palate closure, speech is usually evaluated at **regular 4-6 month intervals**, or as needed, in order to insure the continued development of articulation skills and the use of adequate velopharyngeal function
  - In general, speech therapy is usually initiated anywhere from **20 months to 2 years of age**, or later, if the child demonstrates inconsistent intra-oral breath pressure or sound repertoire, or a delay in the emergence of expressive language skills
  - SLPs and parents can best assist children by increasing the variety of oral consonants in their repertoire before bad speech patterns become normal speech habits
  - In order to help the patient integrate good speech habits, parents should be trained in:
    - Normal language development and sound production
    - Recognizing the difference between oral and compensatory articulation<sup>1</sup>
    - Techniques for stimulating language development
      - Including “homework” language drills
    - Techniques for eliciting correct oral consonant production and extinguishing glottal stops
    - Application of behavior modification techniques
  - Prior to surgery, SLPs should encourage consonant inventory, especially pressure consonants, vocabulary, and oral airflow
    - Parents should initiate simple babbling games to reinforce stop consonants, but ignore the nasal emission that accompanies them

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<sup>1</sup> **Compensatory articulations:** Faulty learning of a speech habit, i.e. using the back of the tongue instead of the front to substitute for the pressure sounds cleft palate patients are unable to produce. (See Key Speech Therapy Terms for further examples)

- Parents are to avoid reinforcing laryngeal growls and glottal stops and respond to the baby by modeling a more appropriate, desired vocalization

### Young Children (3 years and up)

*In this age group, patients should be evaluated by the SLP regarding a need for further speech therapy. Children in this age group are very receptive to learning new language skills, making this an ideal period for parents and SLPs to insure good language habits.*

- Young Children Sound Development
  - By age 3, most children are communicating using complete sentences, although errors in syntax and morphology are common
    - The child should be using nasal and plosive sounds, some fricatives, and even affricate phonemes<sup>2</sup>
  - Children ages 3 through 5 are more receptive to acquiring new speech patterns and correcting abnormal speech patterns than older children. They are in a critical period of brain development, making the brain more receptive to learning these skills
    - Again, parents should be instructed to be the “therapists” at home in order to encourage better speech habits
      - The SLP can teach parents speech drills to practice at home with their child
  - This is an appropriate time to evaluate speech, resonance, and velopharyngeal function and, if needed, begin treatment
    - The procedure for evaluating emerging language skills is the same for children with or without a cleft palate
    - Many standardized tests, which rely on both parent interview and observation of the patient, are currently available<sup>3</sup>
- Therapy
  - After evaluation by a SLP, speech therapy should be initiated if:
    - Multiple compensatory articulation errors are noted, such as abnormal articulation
    - Hypernasality, or nasal emission, due to oral-motor dysfunction is noted
    - If cleft palate surgery changes structure, but does not change the learned articulation patterns or bad speech habits, the individual needs to learn appropriate articulatory placement and oral flow
  - If speech therapy is needed, the SLP should:
    - Determine which category of sounds need to be targeted first, based on the child’s stimulability and the sounds that will have the biggest impact on intelligibility
    - Begin with anterior sounds, as they are the most visible
    - Always start with the voiceless cognate<sup>4</sup> and then add voicing

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<sup>2</sup> **Plosive sounds:** pressure-sensitive consonants that require a build-up of intra-oral pressure prior to a sudden release; includes /p/, /b/, /t/, /d/, /k/, /g/

**Fricative sounds:** Pressure-sensitive sounds that require a gradual release of air pressure through a small opening; includes /f/, /v/, /s/, /z/, /sh/, /th/

**Affricate sounds:** pressure-sensitive consonants that require a build-up of intraoral air pressure and then slow release through a narrow opening; are produced as a combination of a plosive and fricative; includes /ch/ and /j/

<sup>3</sup> Standardized evaluations include: *Sequenced Inventory of Communicative Development* (Hendrick et al., 1984); *Infant-Toddler Language Scale* (Rossetti, 1990); *Pre-School Language Scale-3* (Zimmerman et al., 1992); *The MacArthur Communicative Development Inventory: Toddler* (Fenson et al., 1991)

- Change one feature at a time when moving from one sound in a group to the next sound
- For each sounds, develop auditory (and visual) discrimination of correct versus incorrect productions
- Establish correct placement (and manner) of productions
- Incorporate correct sounds in syllables, single words (initial, medial, and final positions), and then sentences
- Complete carry-over of new sounds into spontaneous speech
- Expensive equipment is not typically necessary. Basic assessment and therapy can be done with a simple kit including a mirror, tongue depressors, recorder, flash/picture cards, and toys/games.

### **School-Age Children, Adolescents, and Adults (5 years and up)**

*In this age group language skill development becomes more difficult, as the prime period of speech development has passed. While many patients will have corrected speech issues by this stage, others require on-going support and development—particularly those who have had cleft palate repair at a later age.*

- Ages 5+ Sound Development
  - The prognosis for normal speech at older ages is somewhat guarded after the critical period of speech development has passed; bad speech patterns have already become ingrained habits
  - When therapy is required for school-age children, it is usually for the correction of any articulation errors that are either residual compensatory errors from velopharyngeal insufficiency, or are errors related to dental malocclusion. These errors may be either compensatory (such as glottal stop for plosives) or obligatory (such as nasal emission)
    - Correction is difficult, if not impossible, if the palate is not able to create enough pressure to make certain sounds
    - Speech therapy is not appropriate for obligatory errors, unless the structure cannot or will not be corrected

### **Frequency of SLP-Patient Appointments**

- Ideally, children with compensatory articulations should meet with a SLP three times a week
  - However, even under the best of circumstances, the SLP usually spends no more than an hour or two per week with the child
- Parents are the primary instructors of language for the child, they should be advised by the SLP on how to be the most effective in that job
  - Patient/parents should practice every day at home, preferably several times each day

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<sup>4</sup> **Voiceless cognates:** A final voiced consonant in a word is replaced by a voiceless consonant. For example, /d/ replaced by /t/ in “red” or /g/ has been replaced by /k/ in “bag”

## Key Speech Therapy Terms:

**Affricate sounds:** Pressure-sensitive consonants that require a build-up of intraoral air pressure and then slow release through a narrow opening; are produced as a combination of a plosive and fricative; includes /ch/ and /j/

**Compensatory articulations:** Faulty learning of speech and habit, i.e. using the back of the tongue instead of the front to substitute for the pressure sounds cleft palate patients are unable to produce. These include:

- **Glottal stops:** Closure of the vocal folds at the level of the glottis
- **Pharyngeal fricative:** Posterior positioning of the tongue to posterior pharyngeal wall, occurring on fricatives and affricates
- **Pharyngeal stop:** Posterior positioning of lingual base to pharyngeal wall, occurring on /k,g/
- **Posterior nasal fricative:** Co-articulated nasal snort/flutter with any pressure consonant.
- **Mid-dorsum palatal stop:** Usually made in an approximate place of consonant /j/ in attempt to valve airflow

**Dental malocclusion:** Misalignment of teeth and/or incorrect relation between the teeth of the two **dental** arches

**Fricative sounds:** Pressure-sensitive sounds that require a gradual release of air pressure through a small opening; includes /f/, /v/, /s/, /z/, /sh/, and /th/

**Hypernasality:** A resonance disorder that occurs when sound enters the nasal cavity inappropriately during speech; the perceptual quality of speech is often described as “nasal,” muffled, or characterized by mumbling; is particularly perceptible on vowels

**Plosive sounds:** pressure-sensitive consonants that require a build-up of intra-oral pressure prior to a sudden release; includes /p/, /b/, /t/, /d/, /k/, and /g/

**Voiceless cognates:** A final voiced consonant in a word is replaced by a voiceless consonant. For example, /d/ replaced by /t/ in “red” or /g/ has been replaced by /k/ in “bag”

**Velopharyngeal insufficiency:** An anatomical or structural defect that precludes adequate velopharyngeal (the mechanism responsible for directed air pressure and sound energy) closure—the nasal cavity is not separating from the oral cavity during speech

## Key Resources:

Golding-Kushner, Karen J. *Therapy Techniques for Cleft Palate Speech & Related Disorders*. Clifton Park, New York: Thomson Delmar Learning, 2001.

Hardin-Jones, M., K. Chapman, and N.J. Scherer. "Early Intervention in Children with Cleft Palate." *The ASHA Leader* 11.8 (2006): 8-9.

Kummer, Ann W. *Cleft Palate and Craniofacial Anomalies: Effects on Speech and Resonance*. Second ed. Clifton Park, N.Y.: Thomson Delmar Learning, 2008.

Rosenbaum, Joyce. "Speech and Language Development in Children with Cleft Lip and Palate." *The Forward Face Newsletter* (1991): 10-12.