Certification Training Manual

SPEECH/LANGUAGE COMPETENCE

The Developmental Sequence is the source of one of humanity's unique and most brilliant neurological skills: speech. But without the foundation of the Developmental Sequence, speech may be compromised, stunting social, academic, and emotional potentials.

Stage I – Medulla/Spinal Cord Level: Birth Cry

From birth, we communicate orally, even though the complexity of speech is in the far future for the neonate. A baby at birth, when the highest level of functioning brain is the medulla and spinal cord, is able to produce a 'birth cry', the function of which is simply to tell the world 'here I am. This is me.'

Stage II – Pons Level: Vital Crying in Response to Threats to Life

This cry quickly changes, and as the baby approaches the pons level of development at two or three months of age, the cry is louder and more insistent. This 'vital cry' says to the world 'help, there is something wrong; I am at risk. Come! Come now!'

The response of any reasonable adult within earshot of that child is to come and discover what is wrong and remedy the situation: the wet diaper, the hunger, the sun that has wandered across the room to shine on the crib and is now too hot on the baby, a finger that got pinched against the crib.

The baby cries, the caregiver responds. This call/response cycle is critical for the baby's understanding that the world is a safe place in which they can let their needs be known and have them met. To respond to each cry is not to spoil the child, but rather to let them know that they are in a safe world and that they have the power to speak up for themselves.

Crying for extended periods of time, and by that we mean not just one night of distress, but for hours and days, can cause cortisol to arise in the system. Cortisol is toxic to neurons, and babies who are abandoned or neglected can develop trauma as early as a few months of life. We frequently see damage through cortisol exposure in babies who have lived in orphanages where no one comes to meet their needs.

Caring for the baby in response to the vital cry causes the baby's brain and the mother's brain to flood with oxytocin, which helps with bonding and is supportive of later learning skills.

Stage III – Midbrain/Mid Cerebrum Level: Creation of Meaningful Sounds

Around the middle of the first year, the baby's brain is functioning at the level of the midbrain and a whole new and social child seems to emerge. The midbrain level of development is responsible for the babbling and cooing and the replication of the tonalities of the conversation and words the baby hears every day.

This baby may look at you and have a very serious conversation with many feelings, statements, and expressions, all without words, but with tone of voice that expresses their emotional state. At this stage, they are able to produce the sounds that would occur in any language anywhere in the world. However, as the brain matures, it prunes away receptors for the sounds the child does not hear in their native language. It can be a great time to expose them to a second language, so that their brain literally retains neurons needed for a second language.

This is a level of the central nervous system that is critical to social interaction. More than half of our communication through speech involves the tonality of that speech. During this phase of development, the infant is expressing themselves through babbling, cooing, playing with sounds, tonality, and sounds that are very much like words, but do not have meaning.

The clear expression of all the sounds needed for speech may be inhibited at this stage of development by under-functioning muscles in the mouth area. The trigeminal nerve is a cranial nerve that is responsible for sensory and motor functions such as biting, chewing, and forming the mouth into shapes to pronounce words clearly.

Stages IV – VII – Cortical Level: The Gradual Development of a Full Vocabulary

When the cortex begins to emerge as the dominant brain, the baby will develop about two words of speech between 12 and 22 months of age. As successive layers of the cortex emerge through the myelination process, spoken vocabulary turns into short sentences, the number of words increases, and a good sense of sentence structure and grammar emerge.

Speech Competence

Testing

Stage I – Medulla/Spinal Cord Level: Birth Cry

Test process:

- If the client is an infant under two months, listen for a cry.
- If the client is older than two months, ask parents if they cried in the first weeks of life.

What to note on your chart:

- If the baby you are assessing makes no sounds and is reported to be mute, note that.
- If parents report the child has no history of crying from birth, if they were ‘a really good baby’ and never cried, note that.

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Stage II – Pons Level: Vital Crying

Test process:

- If they do not respond to threats such as being too hot, too cold, in pain or hungry, note that.
- If the child was in an institutional setting where no one responded to their cries, note that.

What to note on your chart:

- Ask the child to recite (not sing) a memorized poem, a verse: many of the children know religious verses or 'grace' that they say before a meal, the Pledge of Allegiance, etc. This gives you the opportunity to hear if they produce tonality outside of the context of their more emotionally driven speech.
- Ask the parents if the child can carry a tune. It is far too embarrassing for almost any child to sing for you. We don't ask it of them. If they do want to sing a song – it's your lucky day!
- If, in the Point Discrimination test, the child is unable to find the accurate spot on their face in the area of the trigeminal nerve, note that.
- If the client twists words, says letters or syllables in the wrong order, etc., note that.
- If the client speaks too loudly or softly for the setting, note that.
- If the client speaks in a monotone, note that.

Stage IV – VII – Cortical Level: Growth of a Full Vocabulary

Test process:

Engage the child in conversation throughout the assessment.

What to note on your chart:

- If the child does not have noun/verb agreement, uses the wrong tense, the wrong gender, or confuses pronouns generally, note that.
- If the child uses inappropriate sentence structure and grammar for their age, note that.
- If the child reverses sounds within the word, saying "busghetti" for spaghetti or "manimal" for animal, which arises from cerebellar disorganization, note that.

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