Disturbances in the Auditory Pathway

Conductive Hearing Loss: problem in the ear canal or middle ear that blocks the transmission of sound.

- What are some common causes?
  - excessive ear wax
  - Foreign body in ear canal
  - Babies who are put to sleep with bottles in bed
  - Allergies
  - Trauma to the eardrum or bones
  - Chronic ear infections or chronic fluid in ears
  - Scar tissue from multiple surgeries or ear drum ruptures

Video of Ear Tube Surgery

What are the Signs and Symptoms of a Possible Conductive Component?

- Pulling on ears
- Irritability
- Unexplained fever
- Decreased appetite
- Frequent drainage form nose or from ear
- Frequent waking at night
- Several rounds of antibiotics
- Not responding when spoken to
- Does not easily imitate
- Does not use correct sounds for words

How Can We Help?

- Help parents understand the importance of treatment and follow-up for infections.
- Help parents understand how chronic middle ear infection affects the transmission of sound AND therefore their speech and language development.
- Help parents be advocates for their children by requesting a referral to an ENT.

Sensorineural Hearing Loss: damage to the inner ear, auditory nerve, or auditory pathways in the brain

- What are the common causes?

  -Damage to the hair cells (medications, exposure to loud noises, natural aging)

  -Genetic Syndromes

  -Injury

  -Illness

  -Disturbances of fluids in the cochlea

What are the First Signs and Symptoms?

- Failure to pass the newborn hearing screening
- Lack of or limited vocalizations as an infant.
- Lack of response to voice.
- A change in the child's vocalizing or response patterns particularly following an illness.

How Can We Help?

- Ensure that EVERY child who fails ANY type of hearing test gets to a specialists for a follow-up appointment.
- BE AWARE that even hearing impaired infants appear to respond to some sounds because they are sensitive to the vibrations.
- Understand how the child's health history relates to ear health and communicative functioning.

Disturbances with the Oral Mechanism

Structural or physical problems that affect feeding and/or speech production.

What are the common causes?

- Cleft Palate
- Submucous cleft
- Low muscle tone
- Poor oral awareness
- GERD
- Prolonged nasogastric feeding tube
- G-tube feedings
- Enlarged tonsils and adenoids
- Tongue-Tied

What are some signs and symptoms?

Cleft Palate/Submucous Cleft

- Speech that sounds like it is coming from a child's nose.
- Food coming out of a child's nose.

Low Muscle Tone: Open Mouth Posture

Forward resting or protruding tongue

"Heavy" cheeks and "pouty" lips

Drooling

Unable to take bites of food.

More on Low Tone...

- Child mashes food with tongue or sucks food rather than biting.
- Prefer to eat only soft foods.
- Food falls out of a child's mouth while chewing.
- Words may sound different each time a child says it.

Reduced Oral Sensitivity

- Child does not feel drool on chin.
- Child stuffs mouth with more food while eating.
- Child uses fingers to push food around in mouth.
- Child refuses some food textures or has very limited list of food they eat.
- Food remains in mouth after meal is complete.
- Child prefers strong flavors.
- Constantly mouth toys, hands, clothing etc.

Mouth Stuffing

Increased Oral Sensitivity

- Dramatic refusal of food.
- Did not/does not mouth toys as a baby.
- Aversions to certain foods.
- Strong food preferences.
- Averse to tooth brushing
- Limited movement of the tongue.
- Wiping off tongue/mouth when presented with a new food.
- Grimacing when presented with new foods.
- Gagging (even at the sight of food).

Dramatic Refusal of Food

GERD

-Starting and stopping the bottle even when hungry
-Crying and arching while bottle feeding
-Crying when lying down
-Eating only small amounts at a time
-Refusing to eat/aversions to food
-Hoarse voice
-Frequent re-swallowing after meal is finished.

More on GERD..

-Wet burps
-Frequent coughing
-Gagging
-Poor growth
-Respiratory problems (asthma, pneumonia, bronchitis, wheezing)
-Vomiting
-Low muscle tone
-Waking frequently during the night

Let's See What it Looks Like!

Tube Feedings

- Prolonged nasogastric feed tubes
- G-Tube feedings

Enlarged Tonsils and Adenoids

- Frequent ear infections
- Snoring
- Open Mouth Posture
- Mouth breathing
- Drooling
- Sleep Disturbances

Tongue -Tied

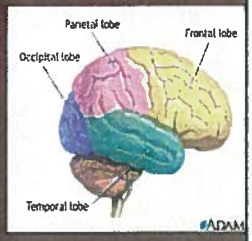
- Trouble latching on for breast feeding
- Can not stick tongue out beyond lips
- Divot at the end of the tongue (like a snake's forked tongue)
- Food left in pockets between cheeks and tongue
- Using different parts of the tongue to make "tongue tip" sounds like (d,t,l,n)

How Can We Help?

- Pay attention when a parent expresses concerns about feeding.
- Consult your speech pathologist if you suspect something is unusual.
- Use your speech pathologist for ideas to help with oral sensitivity, low tone, decreased oral awareness.
- Ask your SLP or OT to come with you on a visit to take a look at feeding and to assure that a more specific intervention from a specialist is not required.

Neurological and Genetic Causes

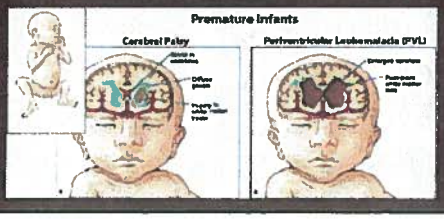
- Basic Brain Neurology
  - –The Frontal Lobe
  - –The Temporal Lobe
  - –The Parietal Lobe
  - –The Occipital Lobe



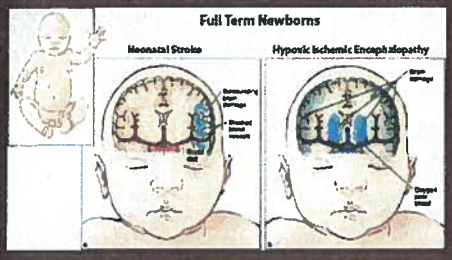
Lets take a Look inside the Brain!

Neurological Contributors

-Interventicular Hemorrhage (IVH)
-Cerebral Palsy
-Periventricular Leukomalaica (PVL)



-Infant stroke -Oxygen Deprivation



More Contributors...

Brain Trauma
-falls/accidents
-abuse

Illnesses
-Group B strep
-Encephalitis
-Meningitis

Teratogens

- Lead poisoning

Fetal Alcohol Syndrome

Meth Exposure and other drugs

Genetic Factors

- Down Syndrome

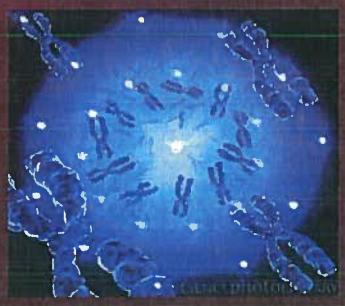
- Spina Bifida

Genetic/Neurological

- Stuttering
- Childhood Apraxia of Speech

Genetic/Neurological

- Autism
- Fragile X



How Can We Help?

- Be aware that neurological and genetic factors contribute to overall communication difficulties.
- Help parents understand how their child's health or medical condition impacts their development.
- We can predict some characteristics based on the child's history and this can lead to developing effective intervention strategies and techniques.
- The plasticity of the brain is an important factor in children birth to three.

Environmental/Experiential Factors

- Maltreatment:
  - -Neglect
  - -Abuse
  - -Foster Care (disturbances in attachment)
  - -Compromised Prenatal Course (teratogens, maternal nutrition, maternal health, stress)
  - -Genetic Vulnerabilities

Impact of Maltreatment on the Brain Architecture

- **Lack of touch** –smaller brains
- **Lack of sensory stimulation** –asocial behavior, language/cognitive delay (less dense corpus callosum)
- **Maternal depression**—reduced frontal lobe activity
- **Maternal stress** –slower fetal brain growth
- **Maternal drug use**—perturbed CNS
- **Deprivation** (orphanages)—poor growth, lower DQ/IQ, sterotypies, dampening of brain functioning

Susan Spieker, Center on Infant Mental Health and Development; University of Washington

Impact of Trauma

- Fight/flight (amygdala, etc)
- Hyperarousal (cingulate gyrus, etc)
- Distractibility (prefrontal regions)
- Dissociation (hippocampus)
- Impaired memory (hippocampus)
- Poor self regulation (frontal regions)
- Emotional processing difficulties (stress hormone imbalances, cortisol)
- Cognitive delays (frontal lobe, corpus callosum)

Susan Spieker, Center on Infant Mental Health and Development, University of Washington

Exposure to TV

The more a baby sits in front of the TV the more their social, cognitive and language skills suffer.

1) Less parent-child interaction
   Parent vocalizations decreased and the child's vocalizations decreased as well
2) Study reveals increased exposure to TV yields smaller vocabularies
3) Mandarin Chinese study: children learn best from a real person

Responsiveness of Caregiver

- It is not **WHAT** the parent says to a child; but rather **how well the parent is able to provide a well-timed appropriate response to the child's initiation** (Child initiates/parent responds)
- Baby learns that his/her sounds are meaningful...they get the caregivers attention
- Adult response (naming the object) needs to occur at the moment when the baby is referencing (looking at/reaching for) the object

How Can We Help?

- Help foster parents understand the impact trauma has on the brain.
- Help families understand that interacting with their child is what helps their child learn. Suggest a 1:1 balance (1/2 hour of video=1/2 hour of mommy/daddy playtime)
- Help caregivers understand that responding to what their child is interested in is what is most important for learning!

When do you intervene?

YOU ALWAYS INTERVENE!

How an we Create Opportunities for Communication?

- Following the child's lead!
- Understanding the communication partners in the interaction!

This portion of the presentation is based on information from It Takes Two to Talk® – The Hanen Program® for Parents. The content of the It Takes Two to Talk Program is drawn from the guidebook It Takes Two to Talk – A Practical Guide for Parents of Children with Language Delays (Pepper & Weitzman, 2004). This presentation does not constitute a Hanen Program since it does not include many of the components of a Hanen Program, but does cover some of the same topics and strategies.

Understanding the stage of communication the child is at.