Special Populations and Concomitant Disabilities

Program in Audiology and Communication Sciences
Pediatric Audiology Specialization

The contents of this presentation were developed under a grant from the US Department of Education, #H325K140303. However, those contents do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government.

Project Officer, Maryann McDermott
Hearing Loss in Special Populations

• Hearing loss does not always occur on its own; it can be related to, or occur at the same time as other health conditions

• In order to create the best treatment plan for your child, both the hearing loss and other co-occurring conditions must be addressed
Genetics

- **DNA** are the building blocks that make a person unique
  - Genes are packaged into 23 pairs of chromosomes, which make up DNA
  - Many different traits, like eye color, are passed from parent to child through genes
- Variations of particular genes can cause hearing loss
- These variations can be passed from parent to child
  - This is called **hereditary hearing loss**
  - Hereditary hearing loss can occur even in cases where neither parent has hearing loss
Syndromes

• A syndrome occurs when genetic variations result in a set of symptoms
  ○ Syndromes may impact many areas of the body including the heart, lungs, kidneys, eyes, and ears
• Associated symptoms may be congenital (present at birth) or may progress as a child ages
• There are multiple syndromes associated with hearing loss
  ○ Your pediatrician may refer you to a genetic counselor to determine whether your child's hearing loss is associated with a syndrome
Down Syndrome

- Down Syndrome is caused by a genetic variation of chromosome 21 and may affect a child's development, both physically and intellectually.

- Children with Down Syndrome may be born with a permanent hearing loss, or may develop hearing complications due to congenitally small ear canals or recurring ear infections.
Craniofacial Anomalies

- Craniofacial anomalies are differences of the bones in the head and face, which can impact various structures including the ears.
- There are many different craniofacial anomalies including **Cleft Lip and Cleft Palate**
  - These are conditions where the lip and/or the roof of the mouth form improperly during pregnancy.
  - Children with clefts may have difficulty with feeding and swallowing, speech, hearing, and/or chronic ear infections.
  - Clefts may occur independently, or as a part of syndrome.
Chronic Middle Ear Dysfunction

• Many syndromes and craniofacial anomalies can cause structural differences of the auditory system
  ○ These may lead to chronic middle ear problems, such as fluid or ear infections
• Medical management may be necessary to address these symptoms

For more information on middle ear dysfunction, please visit the Conductive Hearing Loss module at pacs.wustl.edu/kidshearinghealth/
Autism Spectrum Disorder

- Autism Spectrum Disorder (ASD) is a developmental disorder in which a child may display repetitive behaviors and can have difficulty with social interaction, communication, and sensory processing
  - It is classified as a spectrum disorder because it affects each child differently
- ASD is typically diagnosed within the early childhood years, as symptoms become more recognizable
  - A speech, language and hearing evaluation is a necessary component of an ASD diagnosis
Auditory Neuropathy Spectrum Disorder

- Auditory Neuropathy Spectrum Disorder (ANSD) occurs when the transmission of sound from the inner ear along the hearing nerve to the brain becomes disorganized
  - The effects of ANSD may fluctuate over time and can range in severity
- A child with ANSD may have difficulty distinguishing between speech and other sounds, or may perceive speech that is unclear or distorted
Learning Difficulties

• Many factors impact a child’s ability to learn
  o A learning disability may result in difficulties with reading, spelling, writing, math, behavior or social skills
  o Dyslexia involves difficulty reading or interpreting words, letters or symbols
  o Other disorders such as Attention Deficit Hyperactivity Disorder (ADHD) or Attention Deficit Disorder (ADD) can make it difficult to concentrate and regulate behavior
• Learning difficulties do not affect intelligence, but may impact the way a child learns or retains information
• Talk to your child’s pediatrician or teacher if you suspect your child is having difficulty learning
Vision Loss

- A comprehensive eye exam is typically recommended for a child identified with hearing loss, as vision and hearing difficulties can occur together.
- In some cases, vision and hearing difficulties may occur as a part of a syndrome:
  - **CHARGE** is a syndrome with many medical complexities, including structural and functional differences of the eye.
  - **Usher's Syndrome** is often associated with progressive vision loss, night-blindness, and loss of peripheral vision.
- A child is considered deaf-blind when vision and hearing greatly impact medical, developmental, and educational needs.
**Unilateral Hearing Loss**

- **Unilateral hearing loss (UHL)** is hearing loss in only one ear.
- Children with UHL may compensate with their normal hearing ear and meet typical developmental milestones; however, some signs of UHL may include:
  - Difficulty locating sounds
  - Delayed speech and language development
  - Difficulty understanding speech in noisy places
- A child with UHL may benefit from a hearing aid, cochlear implant, or other assistive listening device.

For more information on developmental milestones, please visit the Speech & Language Development module at [pacs.wustl.edu/kidshearinghealth/](pacs.wustl.edu/kidshearinghealth/)
Communication Options

Children who are deaf or hard-of-hearing may have difficulties with speech and language. Many options are available:

• **Visual:** sign language (American Sign Language) or Augmentative and Alternative Communication (AAC)
• **Tactile:** for individuals with vision and hearing difficulties (tactile sign language)
• **Aural/Oral:** listening and spoken language, often with the use of amplification
• **Combination:** a method in which any of the above may be utilized (total communication approach)

One method of communication may not work best for every child. It is important to discuss the appropriate options for your child, and his or her needs, with your healthcare provider.
Who is involved?

Your child will likely be followed by various specialists working to provide the best care possible:

- **Audiologists**
  - test your child's hearing and balance systems, and determine his/her treatment plans

- **Teachers of the Deaf & Special Education Teachers**
  - help improve your child's communication and learning abilities

- **Developmental Behavioral Pediatricians**

- **Geneticists**

- **Ear Nose and Throat Physicians**

- **Ophthalmologists**
  - test your child's vision and provide glasses or surgical intervention as needed

- **Physical & Occupational Therapists**
  - observe and provide strategies to improve your child’s physical abilities or daily activities

- **Speech Language Pathologists**
Who is involved?

**Geneticists**
investigate the cause or causes of the disorder or syndrome your child may have, based on DNA testing

**Developmental Behavioral Pediatricians**
address the emotional, developmental and behavioral needs of your child

**Speech Language Pathologists**
evaluate your child's speech and language abilities, and provide exercises to improve

**Audiologists**

**Teachers of the Deaf & Special Education Teachers**

**Ear Nose and Throat Physicians**
treat complex disorders affecting the ear, nose or throat

**Ophthalmologists**

**Physical & Occupational Therapists**

Your child may be seen through either individual appointments, or through multidisciplinary programs offered at many hospitals.
Resources and Services

• If you have concerns about your child's development, contact one of the following professionals
  o Pediatrician
  o Speech-Language Pathologist
  o Pediatric Audiologist

• Early intervention and special education services are available for qualifying children

• Ask your child’s healthcare provider about local support groups

For more information on resources on services available for your child please visit the Early Intervention module at pacs.wustl.edu/kidshearinghealth/
To find a pediatric speech or hearing professional near you, please visit one of the links below:

http://webportal.audiology.org/Custom/FindAnAudiologist.aspx

http://www.asha.org/findpro/