FUNCTIONAL HEARING SCREENING

“A PASS IS NOT A PASS FOR LIFE!”

WHO WE ARE:
Mission: support families, programs and services for children who are deaf or hard of hearing, throughout the State of Illinois
Services:
• State-wide technical assistance to professionals & families serving children birth to age 21
• Conferences/trainings
• Consultation services
• Mentoring

YOU TELL ME
• In what capacity do you serve young children and their families?
• How does your program currently screen young children for hearing loss?
• What’s your program’s protocol for sharing results with families?

OBJECTIVES:
• Learn practical information about hearing loss
• Understand the implications of hearing loss on development
• How to use the screening tool & when to talk with families about further pediatric audiological testing

OUTLINE:
• How we hear
• Types & degrees of hearing loss
• Implications for development
• Screening & identification
• Functional Hearing Screening tool
• Early intervention

SLIGHT HIGH FREQUENCY HEARING LOSS
Spelling test
• Write down the words you hear
HOW WE HEAR

TYPES OF HEARING LOSS

• Conductive
• Sensorineural
• Mixed
• Bilateral
• Unilateral
• Progressive
• Neural & Cortical

CONDUCTIVE HEARING LOSS

• Typically considered temporary
• Involves the outer or middle ear
• Usually treatable
• Causes?
  • Otitis Media/ear infection
  • Otitis Media with Effusion/fluid

Otitis Media & Otitis Media with Effusion

• Some Treatment Options:
  • Antibiotics
  • Ear Tubes
  • OtoLAM
CONDUCTIVE HEARING LOSS
Otitis Media & Otitis Media with Effusion

- Impacts:
  - listening
  - language
  - speech development
  - balance
  - behavior

  because it creates a temporary hearing loss!

CONDUCTIVE HEARING LOSS

What are some signs of ear infections you’ve seen in young children?

- Fever
- Tugging on ear
- Fussiness
- Difficulty sleeping & eating
- Problems with balance
- Unresponsive to sounds
- Misunderstands directions/questions
- Fluid draining from ears

CONDUCTIVE HEARING LOSS

Consideration:

- 5 out of 6 children will have at least one ear infection by their third birthday


WHAT CAN YOU DO...

- Report observations to parents immediately!
- Get child’s attention/eye contact before talking
- Stay close to child when talking
- Use visuals to aid understanding

SENSORINEURAL HEARING LOSS

Usually permanent
Involves the inner ear

Causes?
- Genetic
- Non-Genetic
- Acquired

(Mixed Hearing Loss)

When a child has both a sensorineural hearing loss and conductive hearing loss

- Example – moderate sensorineural hearing loss (permanent)
  - middle ear fluid (conductive hearing loss) = mixed hearing loss

BILATERAL & UNILATERAL

Hearing loss can occur:
- Bilaterally
- Unilaterally
  - Symmetrical or asymmetrical

PROGRESSIVE HEARING LOSS

Hearing decreases over time
- Example: baby passes newborn hearing screening, but onset of hearing loss occurs when child is 18 months
- Remember “A PASS is not a PASS for life!”

NEURAL & CORTICAL

Neural
- Auditory nerve
  - Example: Auditory Neuropathy Spectrum Disorder

Cortical
- Brain
  - Examples:
    - Central Auditory Processing Disorder
    - Auditory Pathway Dysfunction

TREATMENT FOR SENSORINEURAL HEARING LOSS?

No, but amplification options: hearing aids and cochlear implants can help provide access to sound

RISK INDICATORS OF HEARING LOSS

Center for Disease Control & Prevention:
http://www.cdc.gov/nchb/d/hearingloss/freetemplates/triskenglish.pdf
&
http://www.cdc.gov/nchb/d/hearingloss/facts.html

DEGREES OF HEARING LOSS
**DEGREES OF HEARING LOSS**

Hearing simulation —
http://www.starkey.com/hearing-loss-simulator

Flintstones Hearing Loss
https://www.youtube.com/watch?v=TD588fFnxE&NR=1

**IMPLICATIONS FOR DEVELOPMENT**

Brain and Language Development
- By 5 or 6 years old, children have acquired all of the linguistic structures they will need for a lifetime!
- The window for optimum language learning is closing by time child is 5 or 6
  - Why?
- Hart & Risley Study (1995)
  - 30 Million Word Gap
BREAK!

SCREENING & IDENTIFICATION

http://www.handsandvoices.org/resources/video/inf_cap.html

NEWBORN HEARING SCREENING:

Illinois
- PA 91-0067
- Hearing Screening for Newborns Act
  - Effective December 31, 2002
  - 'pass' or 'refer'

*DHS -- Every year in Illinois:
180,000 children are screened
500 babies are identified with hearing loss

http://www2.illinois.gov/idhhc/Pages/familyinfo.aspx

SCREENING & IDENTIFICATION POSSIBILITIES:

Testing Options:
- Otoacoustic Emissions (OAEs)
  - Probe inserted into ear canal
  - Only measures the function of the cochlea
  - If emissions are absent, then further testing is recommended
http://www.infanthearing.org/flashplayer/echo-video-player.html
http://www.infanthearing.org/flashplayer/enchointroOAEshort-reprocessed.mp4

- Auditory Brainstem Response (ABR) or Auditory Evoked Response
  - Asleep or sedated
  - Electrodes measures the brain's response to sound
  - Can provide an approximation of child's hearing sensitivity
http://www.youtube.com/watch?v=1QguGD5sQEs

IDENTIFICATION POSSIBILITIES:

More testing options:
- Tympanometry
  - Measures flexibility/mobility of ear drum
- Behavioral Testing
  - Visual Reinforcement Audiometry (VRA)
  - Conditioned Response/Play Audiometry

https://www.youtube.com/watch?v=Oz3s4GyL9xM
https://www.youtube.com/watch?v=UPyeSJO-DIE

NO SINGLE TEST CAN PROVIDE ALL THE INFORMATION TO DIAGNOSIS!!
Pediatric Audiologists are specialists who diagnose hearing loss

FUNCTIONAL HEARING SCREENING (FHS) TOOL
FHS
Purpose: Identify risk factors that may lead to delays in auditory development for children from birth to age three, and thus when to refer children for pediatric audiological evaluations & to facilitate discussions with families about concerns.

Comprised of three sections:
1. Health History
2. Developmental Checklist
3. Summary of Results

*Caution: screening tool, not diagnostic

FHS
Section 1: Health History (pp. 3-4)
- **Purpose:** To identify risk indicators, which would indicate the need for a referral for pediatric audiological testing
- **Means:** parent interview/report & file review
  - 1 or more “yes” checkbox response, refer for pediatric audiological testing

FHS
Section 2: Development Checklist (pp. 5-8)
- **Purpose:** To monitor auditory, receptive and expressive language skills, as delayed milestones could be an indicator of hearing concerns
- **Means:** parent interview/report & observation
  - If 1 ‘no’ response is recorded, monitor and re-screen in 3 months
  - If 2 or more ‘no’ responses are recorded, then refer for pediatric audiological testing

FHS
Section 3: Summary of Results (pp. 9-10)
- **Record results**
- **Make recommendations**

When to refer?

REFER FOR AUDIOLOGICAL TESTING
- Pediatric audiologist
  - EHDI PALS – [www.EHDPALS.org](http://www.EHDPALS.org)
  - University of Illinois at Chicago – Division of Specialized Care for Children (DSCC)
  - Early Intervention

WHAT DO YOU DO?
Child is 33 months
You completed section 1, ‘Health History’ and mother reported her brother (child’s uncle) has had hearing loss since birth
Child was born prematurely & passed Universal Newborn Hearing Screening before going home
You have not completed the ‘Developmental Checklist’ for the child

- **Refer?**
- **Why?**
WHAT DO YOU DO?

Child is 15 months old
Child is reaching developmental milestones per ‘Developmental Checklist’
Dad cannot remember if the child passed her Universal Newborn Hearing Screening at birth
Dad is concerned about child’s lack of response to sounds: he tells you, “she only responds if I’m really close or call her name loudly”

• Refer?
• Why?

WHAT DO YOU DO?

Child is 24 months old
You complete ‘Development Checklist’ for child’s age range and get 1 ‘no’ response
During daily observations, you notice the child tends to be chronically congested

• Refer?
• Why?

POSSIBILITIES FOR WHEN TO USE THE TOOL:

• When child enters program
• Annually
• When child exits your program
• As needed (as concerns arise, child’s behavior changes, etc.)
• In conjunction with objective measures (i.e., OEAs)

FHS

What are some potential challenges you could face administering this screening?

EARLY INTERVENTION

What makes a child eligible for early intervention services?
1. Developmental delay
2. Medical Conditions Resulting in Developmental Delay
3. At risk condition through informed clinical judgment

Early Intervention: 1-800-323-GROW
1-3-6 GUIDELINE
(Joint Committee on Infant Hearing)

- Hearing loss screening by 1 month
- Diagnosis by 3 months
- Early intervention services in place by 6 months

SUMMARY

- What are some causes of hearing loss?
- How does hearing loss impact a child’s development?
- Where would you refer families for pediatric audiological testing?

REMEMBER...

- “A PASS is not a PASS for life!”
- Early identification of hearing loss and intervention is essential!!!
- If there are any hearing concerns, refer for hearing test to rule out the potential of a hearing loss.

AUDIOLOGICAL REFERRAL RESOURCES:

- University of Illinois at Chicago - Division of Specialized Care for Children (UIC-DSCC): 1-800-322-3722 & http://dscc.uic.edu/
- EHDI/ITLS.org: pediatric audiologists

FOR MORE INFORMATION, CHECK OUT:

- Crib Cards → http://www.illinoissoundbeginnings.org/OneNetLibrary/1/documents/3159Internet.pdf
- Center for Disease Control and Prevention → http://www.cdc.gov/nccdphp/dnpa/hearing/oss/facts.html
- National Center for Hearing and Assessment Management → http://www.infanthearing.org/