Pediatric and Adult Hearing Loss

Karen Hawley, MD
Jacob Kahane, MD

New Mexico Medical Society
NOON ZOOM

University of New Mexico Otolaryngology
Head and Neck Surgery
Hearing loss for the primary care setting

- Karen Hawley, MD
  - Pediatric Otolaryngology - Head and Neck Surgery

- Jacob Kahane, MD
  - Otology - Neurotology
Pediatric Hearing Loss

- Congenital hearing loss affects about 1-2/1,000 births
- 90% of children born with a hearing loss are born to hearing parents
- Delay in diagnosis ~ $400,000 in special education and early intervention during school year
- Every $1 spent on hearing care services = $16 return on investment!

WHO: Deafness and Hearing loss
Chen et al. Diagnosis and Management of Cong SNHL. *Curr Treat Opt Ped.* 2016. 2(3):256-265
Audiogram
Pure Tone Thresholds

Speech Banana
Audiogram
Tympanograms

Speech testing
Types of Hearing Loss

Conductive Hearing Loss
Sensorineural Hearing Loss
Mixed Hearing Loss
A tale of two kids with hearing loss…

Presented at age 5 with severe language delay

Grew up in Hobbs

Spanish speaking family

Cochlear Implant age 11 mo

From Roswell, NM

Excelling in the 2nd grade!
KEY POINT

*Earlier diagnosis and management* of children with any level of hearing loss can greatly benefit speech and language outcomes, educational performance, and quality of life measures.
Access to Hearing Aids and Early Intervention

Children who are diagnosed with HL and receive amplification by 6 months of age...

...better language outcomes at 2, 3, 4, 5 and 6 years of age when compared to peers who were amplified later

1 - 3 - 6 Guidelines: EHDI

- 1 month of age: Screening
- 3 months of age: Diagnosis
- 6 months of age: Early Intervention
Diagnostic ABR - auditory brainstem response

- Assesses the integrity of the auditory pathway: cochlear nerve to the brainstem
- Creates an “audiogram”
- Baby must be asleep
  - Birth-5ish months
- Sedated: >5-6 months
  - ONLY at UNMH and Pres
Diagnostic ABR: Audiologists

4- Clinics in ABQ
1- Clinic in Ruidoso
1- Clinic in Alamogordo
### How is NM doing?

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2019</th>
<th>National avg 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Live Births (reported to EHDI)</strong></td>
<td>20,508</td>
<td>21,562</td>
<td>3,587,350</td>
</tr>
<tr>
<td><strong>%age of babies screened</strong></td>
<td>92.3%</td>
<td>96.1%</td>
<td>98.2</td>
</tr>
<tr>
<td><strong>Loss to follow up</strong></td>
<td>6.8%*</td>
<td>.1%*</td>
<td>.6%*</td>
</tr>
</tbody>
</table>
New Mexico 2019 data

• 20,750 Babies received a hearing screening in the hospital
  ○ 533 referred (2.6%)

• 53.8% - normal hearing
• 5.8% - permanent hearing loss

<table>
<thead>
<tr>
<th></th>
<th>New Mexico</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Diagnosed</td>
<td>78%</td>
<td>72.5%</td>
</tr>
<tr>
<td>% Dx’d by 3 month</td>
<td>55%</td>
<td>79%</td>
</tr>
</tbody>
</table>
## Enrolled in Early Intervention

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2019</th>
<th>National Avg 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled in EI</td>
<td>64.7%</td>
<td>61.3%</td>
<td>61.4%</td>
</tr>
<tr>
<td>Lost to f/u</td>
<td>8.8%</td>
<td>16.1%</td>
<td>19.5%</td>
</tr>
</tbody>
</table>
2019 Demographic Info

Newborn Hearing Screening, Diagnosis, and Early Intervention (EI) by Maternal Education

**Maternal Education Level**
- Light blue: Less than High School
- Dark blue: High School/GED
- Light green: Some College/Associate of Arts/Associate of Science
- Green: College Graduate or more

**HSFS Indicator**
- Infants Screened
- Infants Evaluated*
- Infants Enrolled**
Newborn Hearing Screening, Diagnosis, and Early Intervention (EI) by Maternal Race

HFSF Indicator

Maternal Race
- White
- Black
- Asian
- Native Hawaiian or Pacific Islander
- American Indian or Alaska Native
- Other

2019 Demographic Info
Diagnosis is step 1…
Early Intervention/Hearing Aids step 2…
That is just the beginning!
Management/Work-Up SNHL

- Diagnostic hearing test; audiogram/ABR
- Refer to Otolaryngology - Need a “hearing aid clearance”
- Hearing aid fitting
- Medical Work Up/Referrals
  - Genetics
  - Ophthalmology
  - Consider labs/ECG
- School Support - 504/IEP
- Speech therapy/sign support
Management of Hearing Loss: SNHL vs CHL
Cochlear Implantation: Peds

- 9 months of age (Bilateral SNHL)
- Severe to profound SNHL
- Lack of benefit from hearing aids
- Speech/word rec <60%
- Single sided deafness (age 5)
Auditory, Speech, Language Therapy

- SLPs and Deaf Educators that are trained in working with children with hearing loss
  - Listening and Spoken Language
    - PEI/UNMH
  - American Sign Language (ASL)
    - NMSD
Risk Factors in Delay of Diagnosis

- Public insurance
  - Nearly twice the time to get diagnostic testing than private insured

- Non-white race

- Lower birth weight

- Live outside a metropolitan area

- Mother with lower level of education

- Mother who is < 25 years of age

Access to Hearing Aids and Early Intervention

- Children who live in rural areas are at increased risk for delay in receiving amplification

- Insurance type
  - Mixed findings: may depend on state coverage for Medicaid

- Lower levels of maternal education and ethnic minority are associated with delays in HA fitting and/or access to EI

What do we do?

EHDI suggests we address these 4 factors/gaps to improve “lost to follow up”

● Lack of service system capacity
  ○ Access access access
  ○ Partnerships - Audiology EHDI Team
  ○ Telehealth
  ○ Mobile Outreach
  ○ PCP help with hearing aid clearance?

● Lack of provider knowledge
  ○ We are here! Spread the word!
  ○ Project ECHO
  ○ NMMS - “noon zoom”

● Challenges to families obtaining services
  ○ Travel, childcare, insurance/finance

● Information gaps
  ○ Family resources - NBHS, dx of hearing loss, technology
  ○ Schools!
Karen Hawley, MD
kahawley@salud.unm.edu
pedsENT@salud.unm.edu
505-272-4598