Unilateral Hearing Loss Program & Curriculum (0 - 3 yrs): From Conceptualizing & Piloting, to District-Wide Implementation

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Early Childhood Education
Infant Support Services

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Disclaimer

• The photos, illustrations, maps, and clip-arts found on this presentation were found on various internet sites.
Deaf and Hard-of-Hearing Infant Support Services
Index

• A Walk in Time: The Making of …
• Curriculum
• Where we go from here?
A Walk in Time

The Making of the Unilateral Hearing Loss Family Support Center
Long time ago ...

... in a land far, far away ...

- Before 1998 – Diagnosis:
  - High-risk babies: NICU
  - Bilateral microtia/atresia
  - Parent to pediatrician, to audiologist
  - Screenings at schools
Problems with this model?

- Late diagnosis & the price we pay:
  - Language delays
  - Other issues (i.e. academic, social/emotional)
  - Cost to taxpayers
1998

EHDI?

NHSP?

HCC?

HELP !!!
Are these things good or bad?
1998 and Beyond

- **EHDI:** Early Hearing Detection Intervention Laws
- **NHSP:** Newborn Hearing Screening Program
- **HCC:** Hearing Coordination Center
- **Early Start (already existed before 1998):** IDEA Part C
That’s why we are here ...
Early Intervention for Education & Support
LAUSD DHH Infant/Toddler (as of 05/20/08)

- unilateral microtia/atresia 40
- unilateral sensorineural hearing loss (SNHL) 22
- bilateral microtia 9
- bilateral mild SNHL 9
- bilateral moderate-severe SNHL 33
- bilateral profound SNHL (not getting CI) 18
- CI recipient or candidate 18
- auditory neuropathy 11
- mixed hearing loss 4
- recurring conductive issues 3
- multiple disabilities 45
This means:

- Of the 200+ students, about a third of the children have a unilateral loss.
About 65-70% have unilateral hearing loss due to microtia (malformation of the outer ear) and/or atresia (smaller or closed ear canal).
Characteristics

- By definition: One ear hears within normal hearing limits
- Before NHSP: NOT referred
- Parents still grieve, specially those due to microtia/atresia
Parent education for microtia/atresia has added component:

- Cosmetic &/or reconstructive surgeries

Sheryl Lewin, M.D.
Director of Microtia Reconstruction
CHLA
Can these kids develop typical language? Do they need services?

Can we service ALL without benefiting one and shortchanging another?

Can we design a program that will address the unique needs of the unilats?

6 hours per day to service ALL families? These DHH teachers must be miracle workers!!

YES!
How?

Individual Family Service or Family Support Groups?

YES!
The Goal:

To optimize quality of services, without sacrificing quantity, while minimizing cost and effort.
... of a
Birth of a Pilot!
Unilateral Support Group
‘Wh…’

questions

WHERE?

WHO?

WHEN?

WHAT?
WHO?

- Natasha’s families with babies & toddlers with unilateral hearing loss:
  - Hispanic background: Spanish only
  - Non-working parent(s)
  - Some had other children at home
  - No car
WHEN?

- Alternating months –
  - 1 Home: 5x/yr
  - 1 Group: 5x/yr

2006
WHERE?
City of Los Angeles & Communities

Place names in BLACK represent communities that lie within the City of Los Angeles. Place names in RED represent communities adjacent or near to the City of Los Angeles but are not part of the City of Los Angeles.

- Los Angeles County Outside City of Los Angeles
- Ventura County

Local Districts
NARROWING DOWN THE POSSIBILITIES

<table>
<thead>
<tr>
<th>GEOGRAPHY</th>
<th>FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Mid-point</td>
<td>- Economical</td>
</tr>
<tr>
<td>- Accessibility</td>
<td>- Bathroom: clean</td>
</tr>
<tr>
<td>- Safe</td>
<td>- Room: min. sq. ft.; privacy</td>
</tr>
<tr>
<td>- Familiar neighborhood and</td>
<td>- Availability</td>
</tr>
<tr>
<td>surroundings</td>
<td>- Food, drink, strollers: OK !!</td>
</tr>
</tbody>
</table>
WHAT?

- Unilat Curriculum:
  - LAUSD DHH Curriculum: some topics (exclude: CI, …)
  - Unilat Topics
  - Guest speaker

- Support group:
  - Icebreaker
  - Grief
Outcomes
Next Steps ...
SUPPORTING ALL FAMILIES

• How Do We Support Families Of Children Who Have An Unilateral/One Sided Hearing Loss In The Entire District?
  • 13 DHH Infant Teachers
  • Tarzana: local districts 1 and 2
  • Marlton: local districts 3, 4, 5, 6, 7, and 8
September, 2007 to June, 2008
• Tarzana-ten week sessions, once a week
• Marlton-ten months session, once every other month

September, 2008 to June, 2009
• Tarzana & Marlton: 10-week sessions, 2x/year

September, 2009 to Present
• Tarzana & Marlton: 10-week sessions, year round
Support Group For Families with a child with Unilateral Hearing Loss

Guest: Scott - Adult with unilateral atresia who underwent reconstructive surgeries for microtia.

Where: Marlton Family Support Center 
4000 Santo Tomas Drive, 
Los Angeles, CA 90008

Date: Tuesday, June 17, 2008 
Time: 10:00 a.m. to 12:30 p.m.

 довольствоваться

Grupo de apoyo para familias que tienen ninos con perdida auditiva unilateral.

Invitado: Scott -- Adulto con atresia que paso por cirurgias reconstructivas para microsia.

Lugar: Marlton Family Support Center 
4000 Santo Tomas Drive, 
Los Angeles, CA 90008

Fecha: Martes, 17 de junio, 2008

Horario: 10:00 a.m. to 12:30 p.m.
INDIVIDUAL SESSIONS

• Parents arrive with their child
• Greeting and Socialization
• Transition To Separation
• Children Outside/Parents Meet With Teacher and Guest Speaker
• Break/Snack Time
• Review of Information
SUPPORT SERVICES

• Interpretation
  - Infant Program Assistants
  - Translation Unit

• Audiologist

• Social Worker

• OT/PT: Consultation

• Nurse

• Transportation
CHALLENGES WE FACED

• Support for parents that cannot come
Lydia Sussman
DHH Infant Family Support Centers

• Every family shall have the opportunity to meet and learn with others who have children with similar hearing loss.

• Every family shall have the opportunity to participate in a support group.
We designed a Curriculum for Home Visits
• Taking time to bond and fall in love
• Keeping track of your records/information:
  – The Parent Notebook
• How do I Feel?
• Early Development
• Siblings and extended family members
Audiological to Auditory – 1

- ACCESS TO BRAIN & BRAIN DEVELOPMENT
- EAR ANATOMY
  - Parts & Functions
  - How Sound Travels
- HEARING LOSS
  - Location:
    - Outer, Middle, Inner
    - Unilateral or Bilateral
  - Type
    - Conductive
    - Sensorineural (sometimes separated: Sensory or Neural)
    - Mixed
    - Auditory Neuropathy
  - Degree
    - Hearing WNL
    - Mild
    - Moderate
    - Severe
    - Profound
MY CHILD’S HEARING LOSS

Scanned samples from NHS referral form

ETIOLOGY

Known
- Genetic: Syndromic vs. Non-syndromic
- Trauma/Injury
- Ototoxic

Unknown

TYPES OF HEARING DEVICES & HOW THEY WORK:

- Hearing Aids
- Baha
- Cochlear Implants

AUDIOGRAM 01: Intro

- Pitch & Loudness: Frequency in Hertz; Decibels
- Degree of Loss by Decibels
- What’s the Speech Banana
- Computer software simulation: This is what you hear if you have ______ hearing loss.

AUDIOGRAM 02: My Child’s Audiogram

- Unaided results: Plot on Familiar Sounds Audiogram
- Aided results: Plot on Familiar Sounds Audiogram
AUDIOGRAM 03:

“Muddy In = Muddy Out”; “Quickest way into speech is through audition.” Demonstrate learning speech through audition, vision, tactile.

What to do if Aided one cannot hear all sounds of speech at 6 ft?

- 6dB Rule
- FM system
- CI

TYPES OF AUDIOLOGICAL TESTS

- OAE
- ABR
- Tympanometry
- Soundfield
- Bone conduction
- Masked
- ...

SURGERY FOR MICROTIA

- Reconstruction of pinna:
  - Rib cartilage
  - Medpor
  - ...
- Opening of ear canal &/or middle ear
AUDITORY SKILLS DEVELOPMENT
- Detection
- Discrimination
- Identification
- Comprehension
- All the above + Distance
- All the above + NOISE: Hearing in Noise

AUDITORY STRATEGIES
- Auditory sandwich
- Acoustic highlighting
- Other strategies learned from Teresa Caraway

6 LING SOUNDS
- Where are they in the Speech Banana
- Why these 6 sounds
- Chart: Detection & Discrimination at varying distances, up to 30 ft.
  Importance of charting a baseline

SUPRASEGMENTALS
- Duration (rhythm); Intensity (dynamics); Pitch (+ timbre)
- Suprasegmentals and Language: what cues are gained?
- Suprasegmentals and frequencies: where in Hz?
FORMANTS
- Definition
- 6 Ling Sounds & their formants: relate to XI.b

MAPPING FORMANTS ON MY CHILD’S AUDIOGRAM

MUSIC, THE BRAIN, AND LANGUAGE
- Music & Intelligence
- Rhythm: motor development; language cadence; prosody; literacy;
- Pitch + timbre: discrimination; hearing in noise
The Ling Six Sounds

Auditory Skills:
• Detection
• Discrimination
• Identification
• Comprehension
• + distance
• + noise

- For Infants
- For Toddlers
Making communication choices
Communication

– Hey, Baby, what’s up???
• What’s Typical Development
• Assessments:
  – Receptive and Expressive Language Scales
  – Typical development
• Experience Books
• Parenting Challenges
  o Discipline and undesirable behaviors
  o What my child likes and dislikes
  o Parenting the child who is deaf or hard of hearing
  o Use consistency, routines, rituals and family activities
  o Redirection and choice
  o Potentially dangerous home situations
Talk Around the Clock
We designed a specialized curriculum for the Unilateral Hearing Loss Support Group
Day One:
Introduction: Taking Care of Me
Day Two: Sharing our Stories
How I Found Out and How I Feel
Day Three:
Types of Hearing Loss

- Bilateral
- Unilateral
- Sensory-neural
- Conductive
- Microtia/Atresia/Stenosis
Day Four: Types of Microtia
Atresia
Day Five:
How the Ear Works
Day Six:
Understanding Audiograms and Hearing Testing
Day Seven: Genetics

Autosomal recessive

Carrier father | Carrier mother
Unaffected son | Carrier daughter | Carrier son | Affected daughter

Autosomal dominant

Affected father | Unaffected mother
Affected son | Unaffected daughter | Unaffected son | Affected daughter

U.S. National Library of Medicine
Day Eight:
Surgery to Repair Microtia

Rib Cartilage

Medpor
Guest Speaker
Surgery to repair Atresia
Day Nine: Sensible Monitoring
Typical Language Development
Day Ten: Hearing Aids and the BAHA

Hearing Aids

BAHA
We wish to thank:

* LAUSD DHH administration
* The families of our infants
* Our amazing teachers and
  * Infant Support Staff

for their support and belief in
our ideas