

NCHAM Webinar Series

Meeting the Needs of Physicians in Support of EHDI

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To Achieve EHDI's 1-3-6 Goals...

- Hearing (re)screening by **1 month**
- Diagnostic test by **3 months**
- Intervention (including amplification, if desired) by **6 months**

...a Team approach is needed.

The role of the Medical Home: Coordination, Communication, Access to EHDI



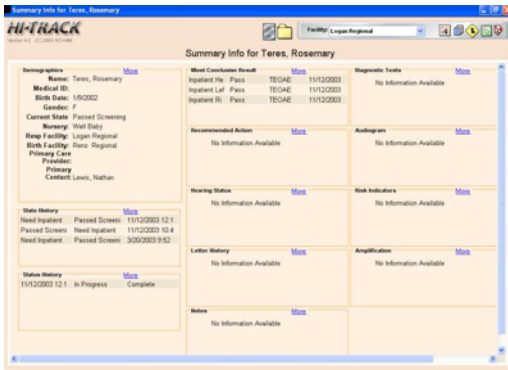
Screening confirmation



Diagnostics



Specialists



Reporting



EI Services & Family Support



Early childhood screening

Purpose of 2012 Physician Survey

- ✓ Understand the degree to which medical homes are engaged in EHDI systems.
- ✓ Update our understanding of physician attitudes & knowledge re: EHDI, assessing progress since 2005.
- ✓ Drive strategies to support physicians in their role in EHDI.

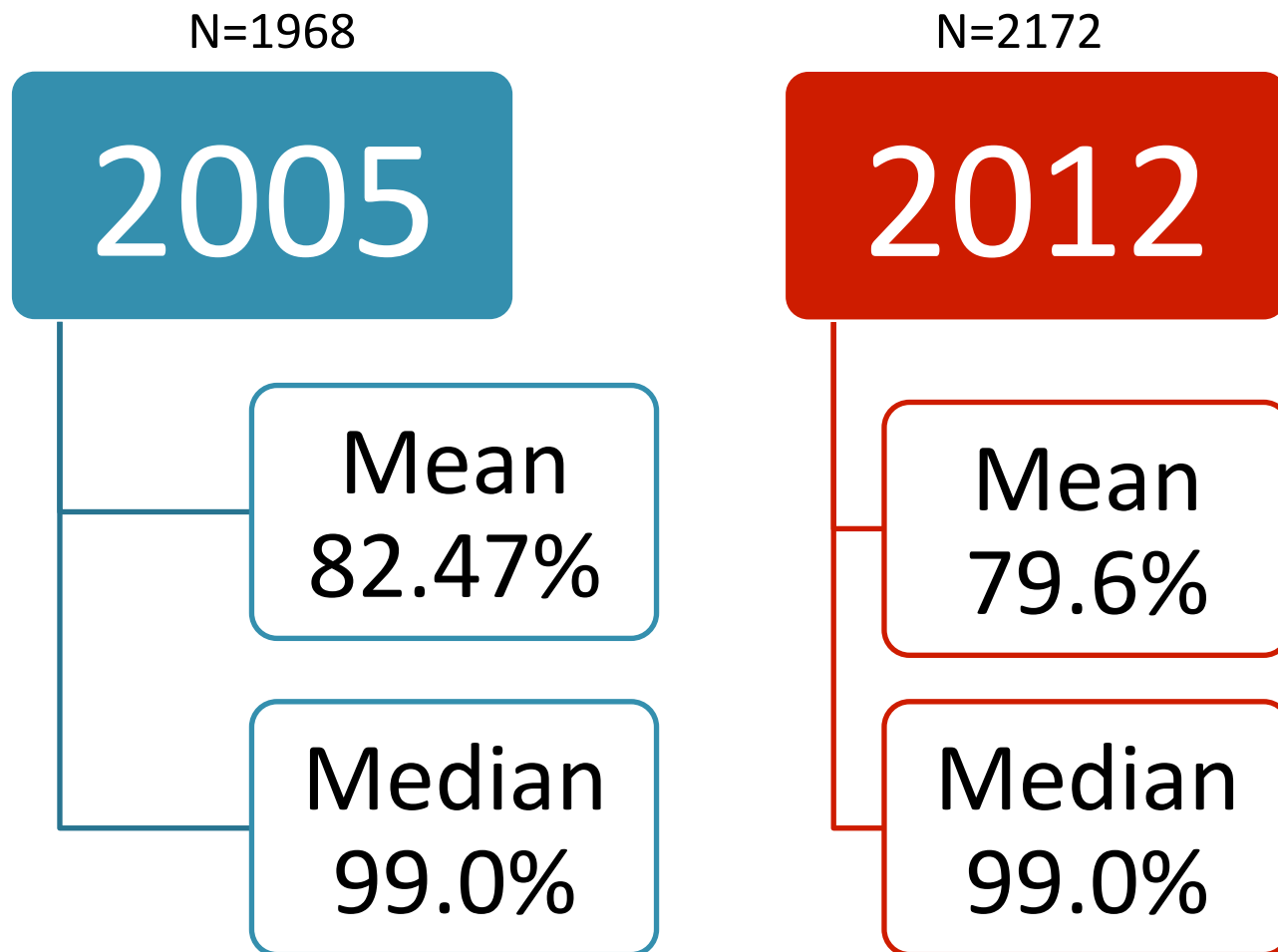


Demographics of Respondents

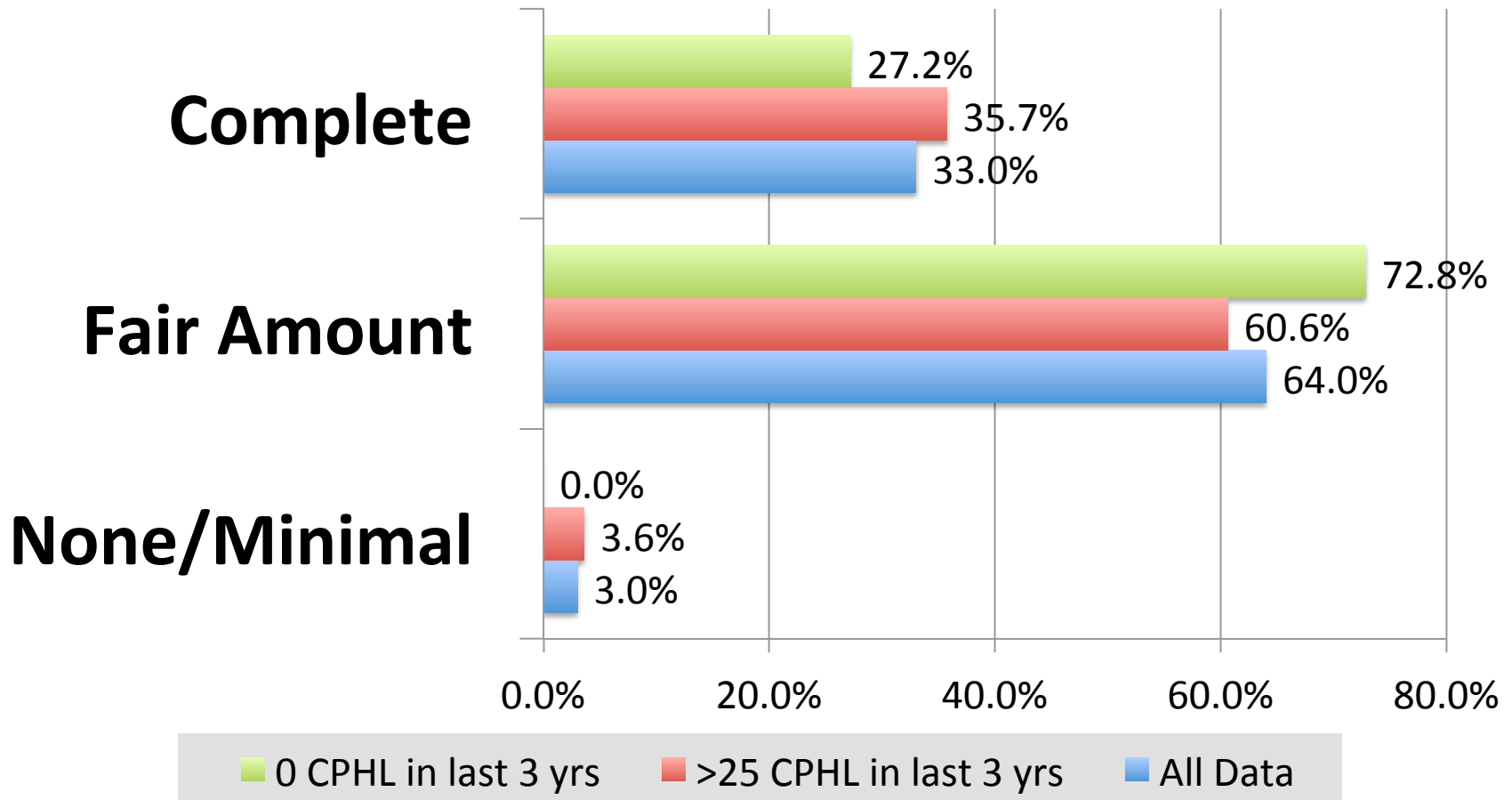
	2005	2012
Type of Provider		
Pediatrician	60.3%	53.8%
Family Practice Physician	27.8%	27.4%
Otolaryngologist	3.0%	7.2%
Neonatologist	2.8%	3.1%
OB/GYN	0.5%	0.6%
Practice Location		
Metro area	62.5%	56.5%
Small Town	24.1%	25.5%
Rural Area	13.3%	18.0%
Type of Practice		
Private Practice or Community Clinic	78.2%	81.8%
Hospital	10.8%	10.0%
Medical School or University	6.1%	3.8%
Other	4.0%	4.9%
Gender		
Male	53.2%	51.8%



For newborns in your practice during the past year, estimate the percentage for which you received initial newborn hearing screening results?

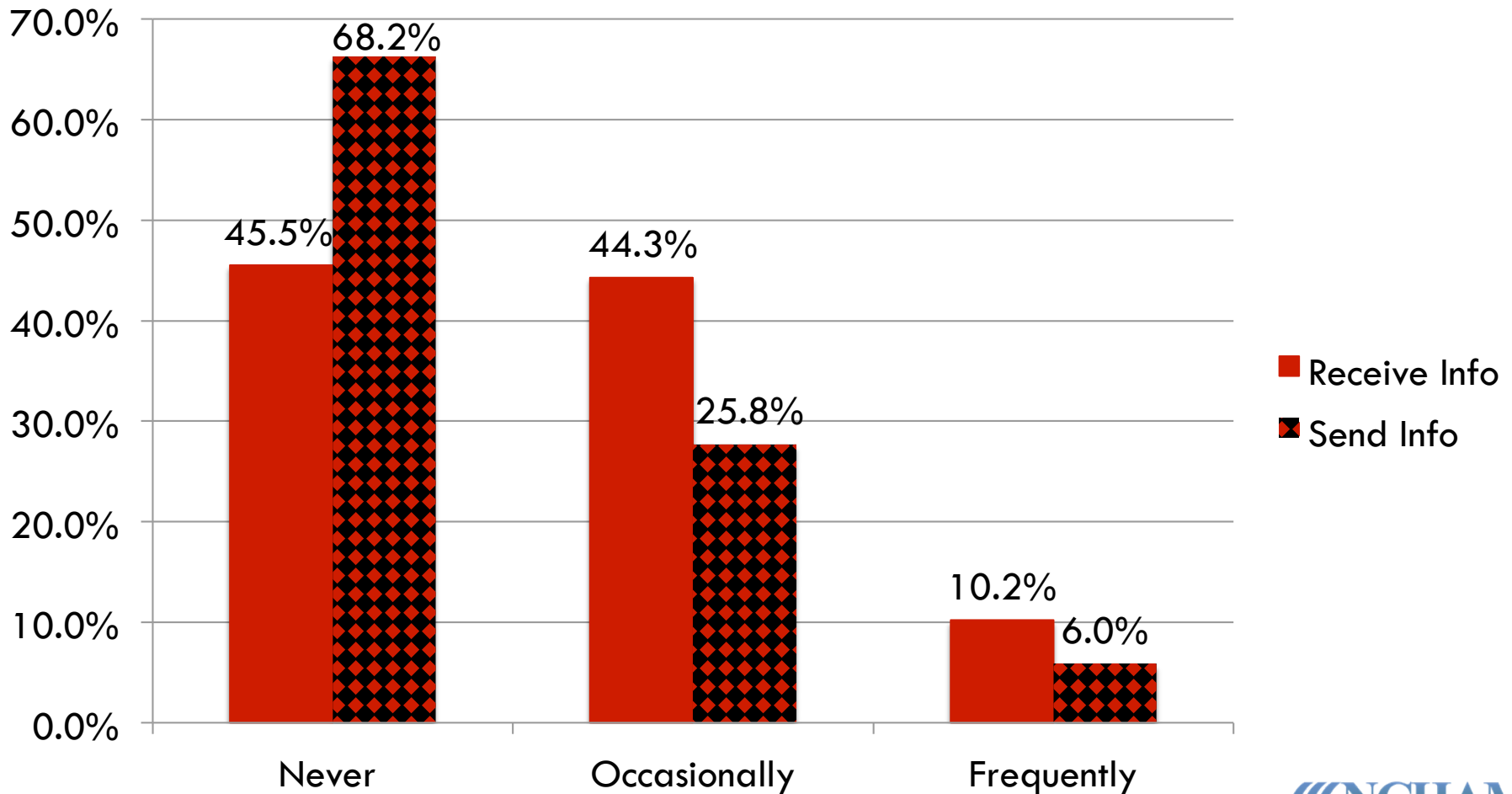


How Much Trust Do You Have in Newborn Hearing Screening Results?



Note: This question was not asked in 2005

How often do you connect with your state EHDI program?



Note: This question was not asked in 2005

What is your best estimate of the earliest age at which:

<1 mo	1-3 mos	4-6 mos	7-9 mos	10-12 mo	>12 mo
75.7%	11.7%	7.1%	4.2%	0.1%	1.2%
41.0%	51.9%	6.1%	0.3%	0.7%	0.8%
51.9%	10.8%	12.4%	15.3%	0.3%	9.3%
20.9%	37.0%	24.8%	2.3%	10.2%	5.3%
38.3%	9.0%	11.2%	47.3%	0.1%	18.1%
12.2%	26.9%	31.9%	3.7%	16.6%	9.1%
61.6%	8.0%	0.1%	0.1%	0.4%	7.0%
26.9%	33.3%	39.1%	0.1%	8.1%	4.2%

a. A newborn not passing the hearing screening should receive additional testing

b. A child can be definitively diagnosed as having a permanent hearing loss

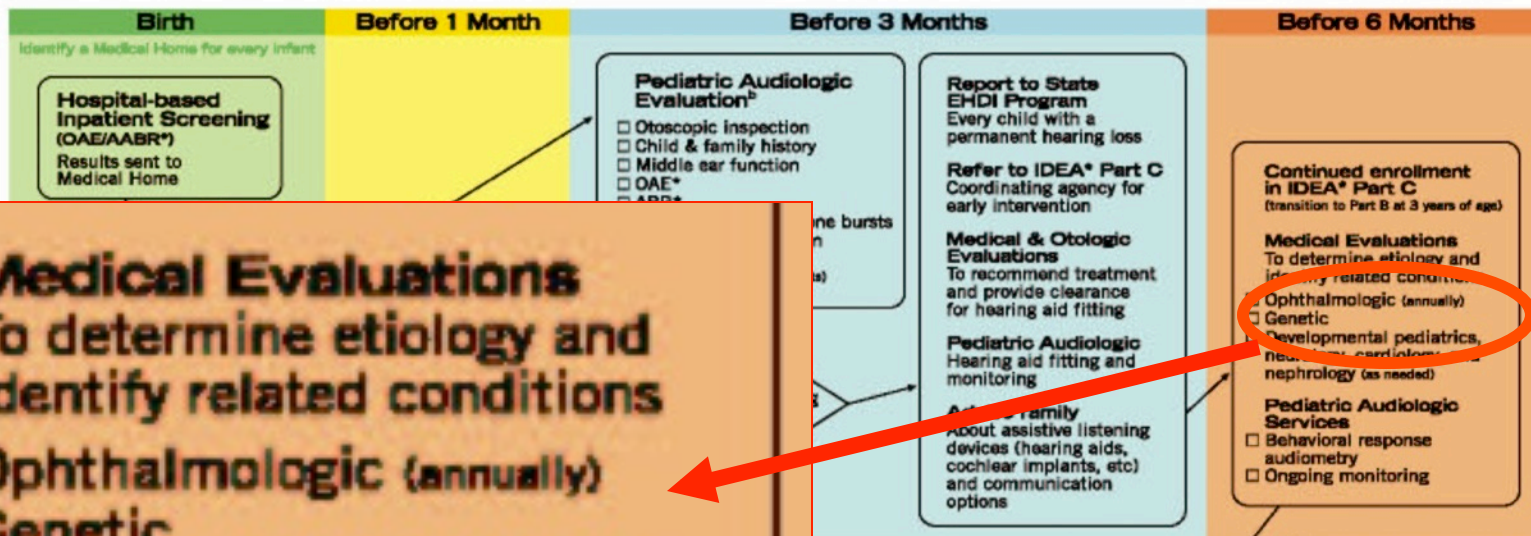
c. A child can begin wearing hearing aids

d. A child with permanent hearing loss should be referred to early intervention services

2005/2012 Comparison

American Academy of Pediatrics

Universal Newborn Hearing Screening, Diagnosis, and Intervention Guidelines for Pediatric Medical Home Providers



Medical Evaluations
To determine etiology and identify related conditions

- Ophthalmologic (annually)
- Genetic
- Developmental pediatrics, neurology, cardiology, and nephrology (as needed)

Pediatric Audiologic Services

- Behavioral response audiometry
- Ongoing monitoring

*OAE = Otoacoustic Emissions, AABR = Automated Auditory Brainstem Response, ABR = Auditory Brainstem Response, IDEA = Individuals with Disabilities Education Act

Notes:

(a) In screening programs that do not provide Outpatient Screening, infants will be referred directly from Inpatient Screening to Pediatric Audiologic Evaluation. Likewise, infants at higher risk for hearing loss, or loss to follow-up, also may be referred directly to Pediatric Audiologic Evaluation.

(b) Part C of IDEA* may provide diagnostic audiologic evaluation services as part of Child Find activities.

(c) Infants who fail the screening in one or both ears should be referred for further screening or Pediatric Audiologic Evaluation.

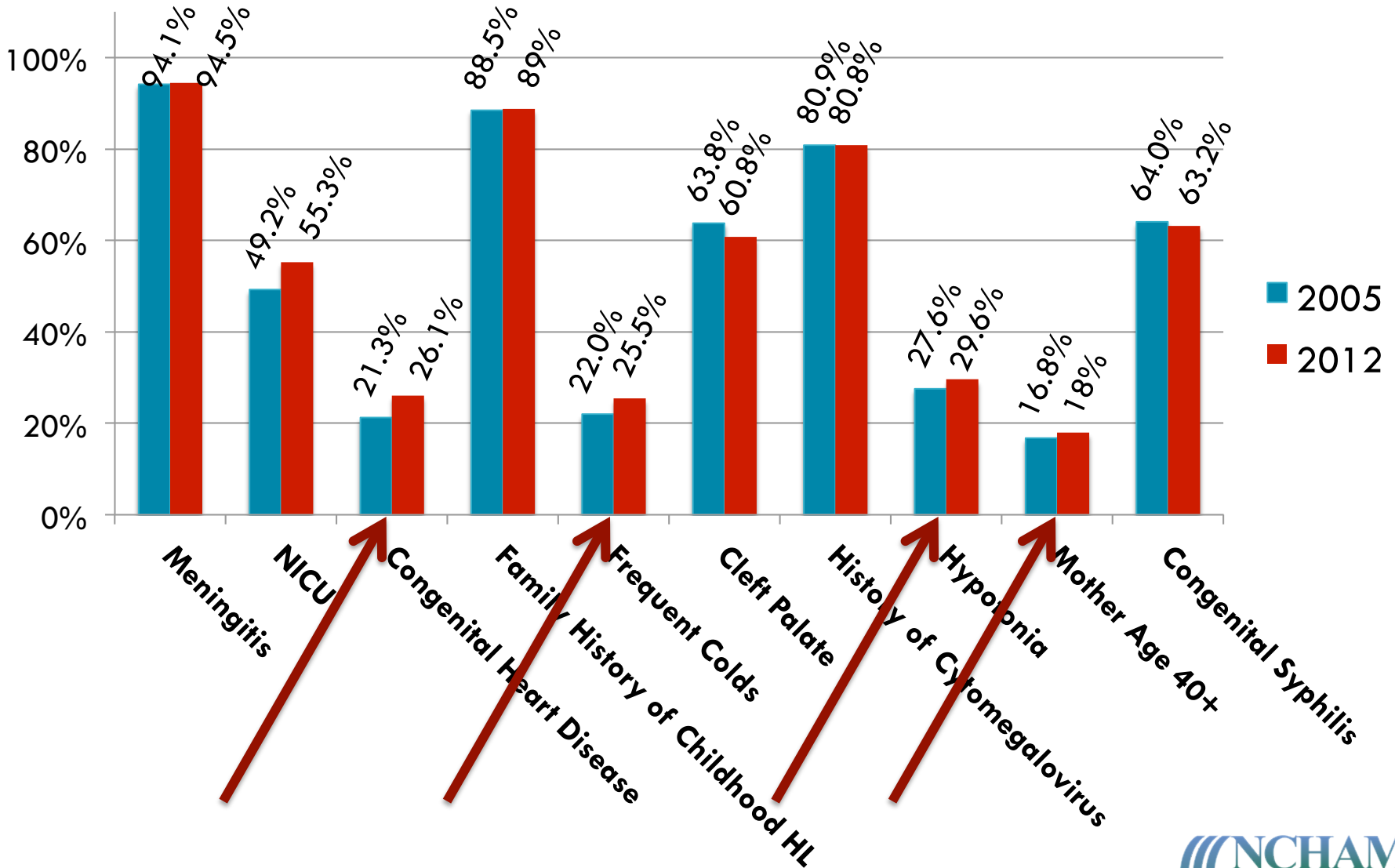
(d) Includes infants whose parents refused initial or follow-up hearing screening.

List any specialists to whom you would routinely refer the family of a child with confirmed permanent hearing loss

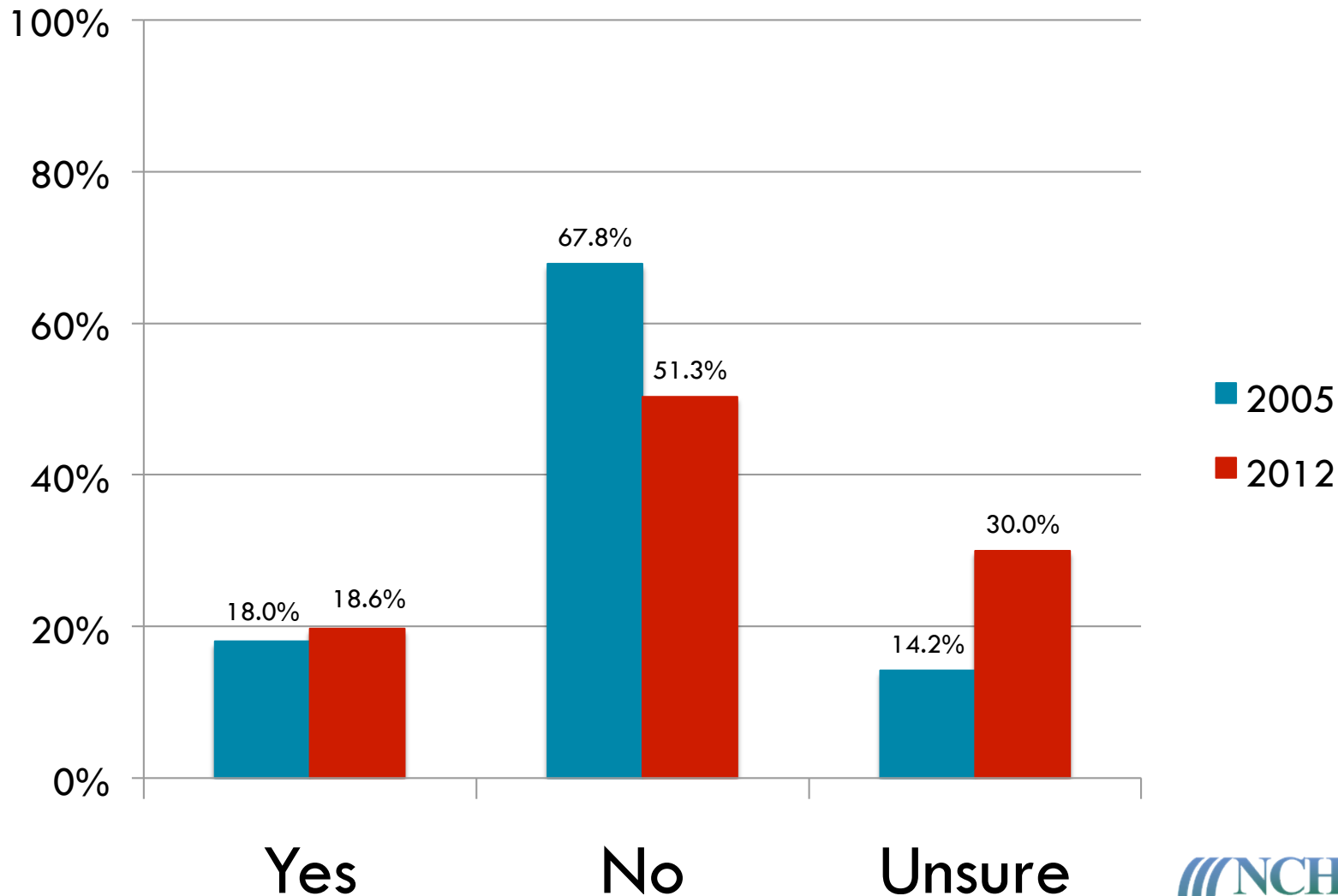
(open-ended question)

Specialist	2005	2012
ENT/Otolaryngology*	75.6%	73.4%
Geneticist*	8.8%	9.3%
Ophthalmologist*	0.9%	2.2%
Audiologist	41.2%	53.0%
Speech Language Pathologist	22.9%	27.0%
Early Intervention	11.4%	12.0%
Neurologist	7.0%	5.6%

Which of the following conditions puts a child at risk for permanent late onset hearing loss? (Check all that apply)

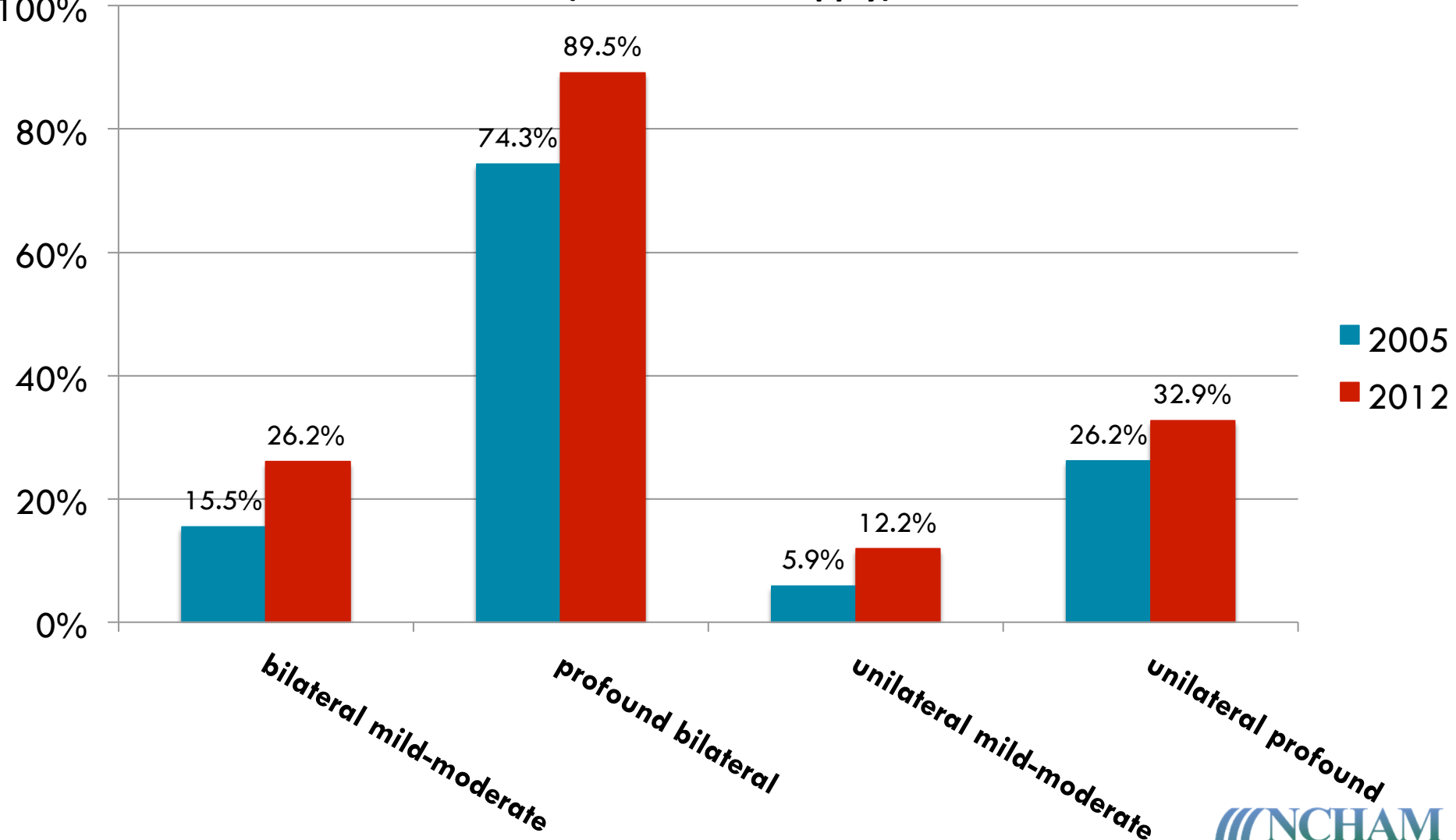


Did your training prepare you adequately to meet the needs of infants with permanent hearing loss?



Children with which of the following hearing losses may be candidates for cochlear implants?

(Check all that apply)



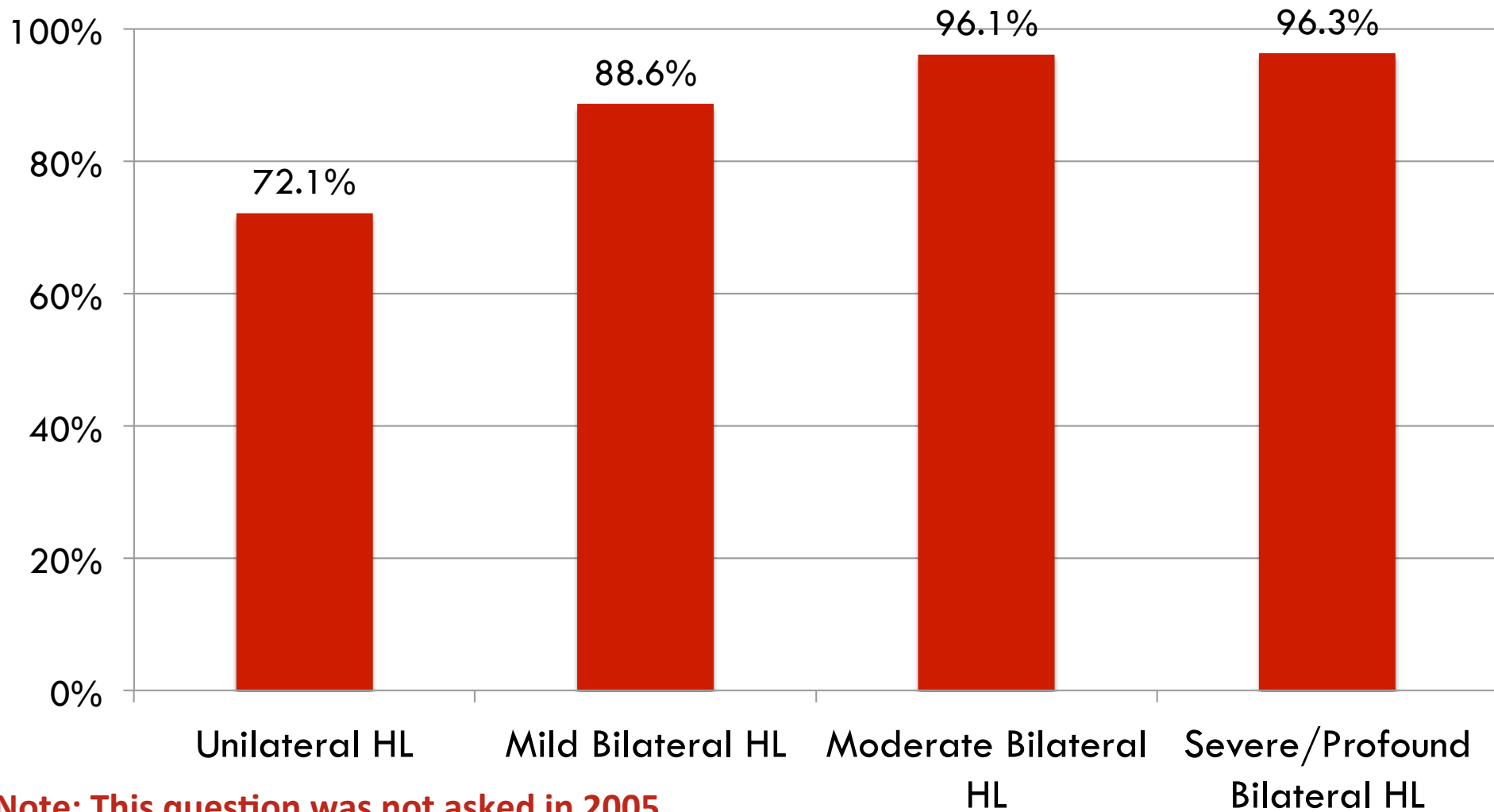
How confident are you in talking to parents of a child with permanent hearing loss about...?

2005

2012

2005				2012				
Very Confident	Somewhat Confident	Unsure	Not Confident		Very Confident	Somewhat Confident	Unsure	Not Confident
Not included in 2005 survey				NBHS Process	54.0%	37.2%	0.0%	8.8%
14.5%	64.2%	0.4%	20.9%	Causes of HL	28.5%	56.9%	0.0%	12.7%
7.2%	35.0%	1.1%	56.7%	Communication Options (e.g., ASL, LSL, Cued Speech)	12.8%	37.8%	0.0%	49.3%
14.4%	58.6%	0.9%	26.1%	Unilateral or Mild Hearing Loss Consequences	28.0%	54.7%	0.0%	17.3%
16.5%	49.7%	0.9%	32.9%	Bilateral moderate to profound HL Consequences	21.7%	48.3%	0.0%	30.0%
6.3%	28.0%	2.9%	62.7%	Cochlear implant candidacy	9.8%	33.9%	0.0%	56.3%
Not included in 2005 survey				What to do next when a child diagnosed	37.0%	49.7%	0.0%	13.3%

Which of the following can have an impact on speech and language development? (Check all that apply):



Note: This question was not asked in 2005

Do you do hearing screening for infants and young children in your office?

Yes –28.6%

No –71.4%



Note: This question was not asked in 2005

If yes, who are you screening?

Newborns who do not pass NBHS in
hospital 50.2%

Newborns for whom you cannot
obtain NBHS results 43.3%

All newborns regardless of previous
tests 15.4%

Children ages 1-3 years as part of
their annual check-ups 50.9%

Children of parents who voice
concerns about their child's hearing 81.4%

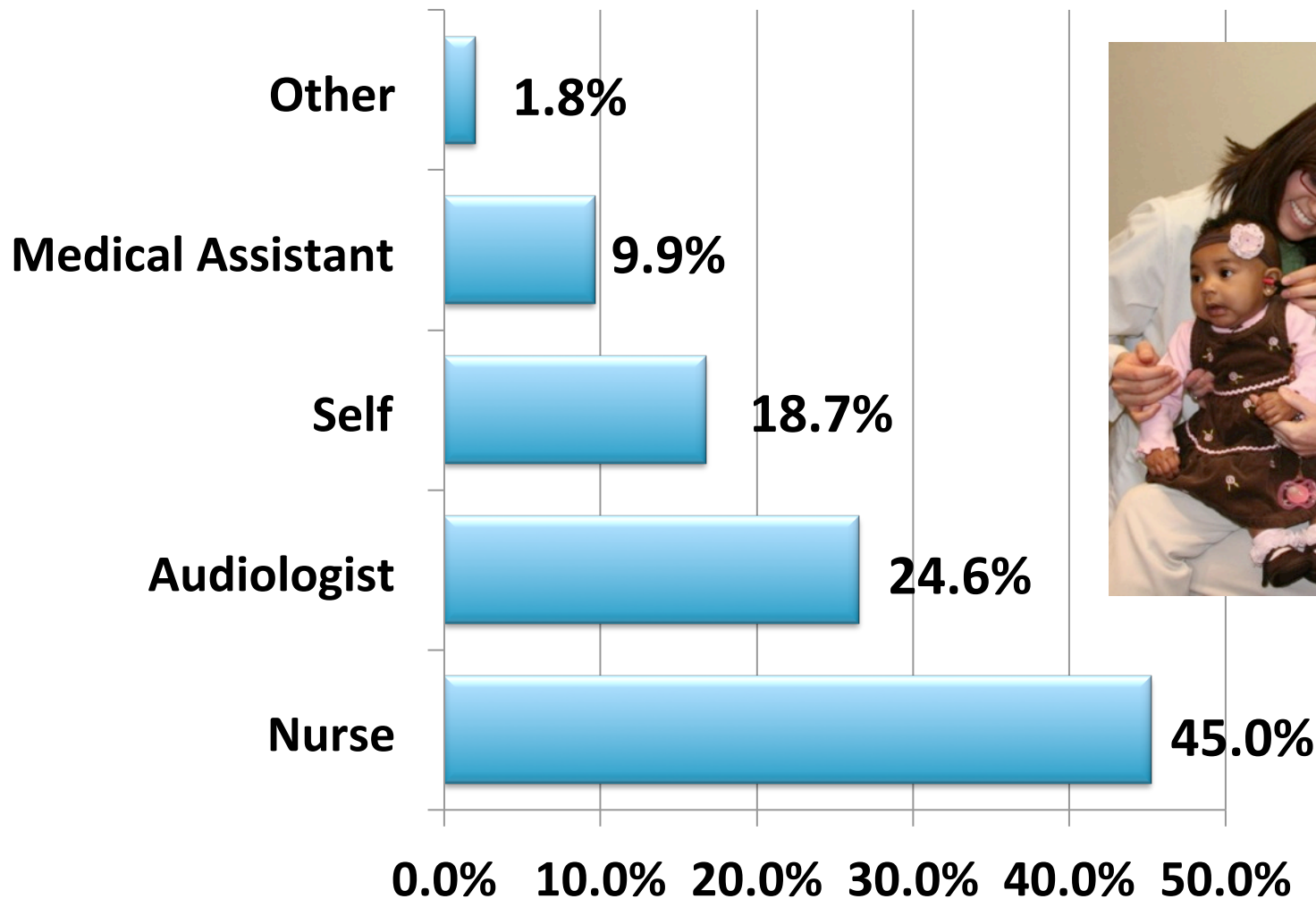
Note: This question was not asked in 2005

How often do you use each of the following to screen hearing in your office?

	Never	Occasionally	Frequently	Always
a. AABR	71.6%	14.4%	10.3%	3.7%
b. Response to sounds/ noisemakers	17.1%	25.3%	36.4%	21.2%
c. Caregiver interview or questionnaire	9.7%	12.5%	35.4%	42.4%
d. OAE	34.2%	13.4%	29.2%	23.2%
e. Tuning Fork	53.5%	33.7%	9.7%	3.1%
f. Tympanometry	21.1%	28.2%	32.5%	18.3%

Note: This question was not asked in 2005

Who does most of the hearing screening in your office? (Choose one)



Note: This question was not asked in 2005

Number of children seen with permanent hearing Loss in your practice during last 3 years

	0 (n=672)	1-3 (n=858)	4-9 (n=310)	10-24 (n=141)	25-49 (n=29)	50+ (n=30)
Routinely refer the family of a child with permanent hearing loss to a geneticist.	4.8%	7.9%	16.1%	17.7%	13.8%	50.0%
Believe hearing aids can be fit for children 0 to 3 months of age.	34.4%	38.9%	42.3%	39.6%	46.4%	66.7%
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants.	25.6%	28.6%	30.3%	18.4%	17.2%	13.3%
Believe unilateral hearing loss affects speech and language development	71.0%	73.2%	75.5%	75.2%	75.9%	90.0%

What correlates with knowledge about hearing loss and treatment?



- Number of children seen w/hearing loss? (substantial effect)
- Perceived adequacy of training? (some effect)
- Years of experience in pediatrics? (little effect)
- Percent of practice comprised of 0-5 year olds? (small positive effect)



Survey Take-Home Messages

- Physicians are getting NBHS results, but little other communication w/state EHDI program
- Some skepticism re: trust in NBHS results
- No better knowledge re: 1-3-6 rule
- No better knowledge re: risk factors
- Feel less prepared in terms of training
- Apx. $\frac{1}{4}$ perform hearing screening, often via noisemakers and parent interview

There's a lot more work to do!

How can this information be used by EHDI?

Reported coordinator activities:

Raise awareness

- ✓ Share results w/state EHDI Advisory Board
- ✓ Present at grand rounds
- ✓ Present at physician conferences, audiology task forces

Educate & provide resources for physicians

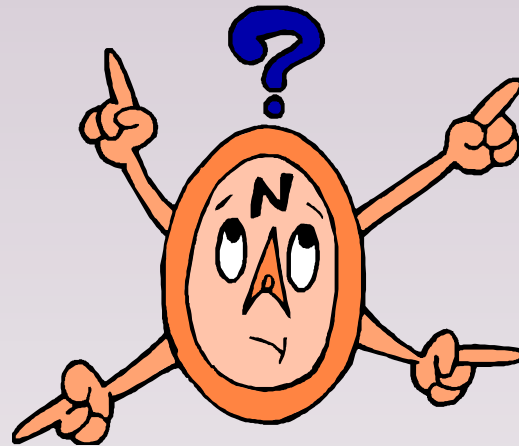
- ✓ Engage Chapter Champions in training
- ✓ Target high LTF hospitals, support medical homes in area
- ✓ Conduct follow up surveys to “drill down”

Guide EHDI policies and practices

- ✓ Target physician behaviors in QI efforts
- ✓ Interdisciplinary training

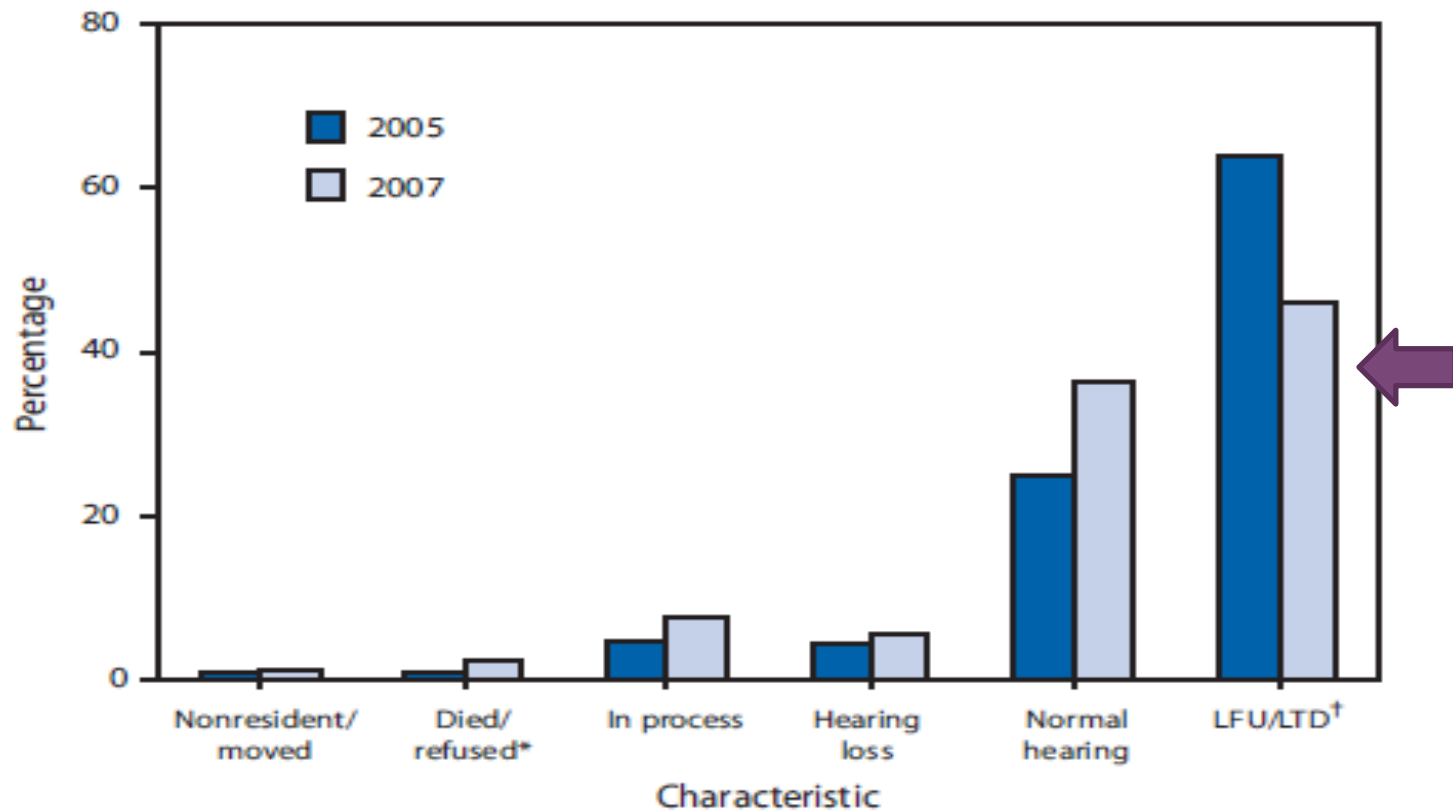


What are the biggest problems facing EHDI programs?



Lost to Follow-Up (3 Months)

FIGURE. Status of infants who did not pass initial hearing screening — United States, 2005–2007



39% -
2010

Lost to Treatment (Hearing Aids by 6 Months)

In spite of 91% retest rate

Only 39% fit with aids on time

Late diagnosis

Medicaid - more lost to follow-up

NICU babies harder to treat because of compounding factors

Distance from specialized centers



Early Intervention

Only 60-70% of infants with hearing loss are enrolled by 6 months (CDC)



Barriers – M. Gaffney CDC

Hospital screening

- Technique and/or low numbers = high false positives
- Presentation of results

Documentation

- Data reporting systems and ease
- Importance

Audiology

- Lack of experienced “pediatric” audiologists
- Communication

Family

- Cost and transportation
- Language access
- Mobility
- Urgency

Challenges to medical home

Relatively low incidence of severe hearing loss

- One of the most common congenital disorder

Lack of physician knowledge and education*

- Different terminology
- Misconceptions – success of UNHS*

Getting newborn results

- Difficulty with hospital
- Integrating with electronic medical records

Retesting in office

- Reporting results*

Challenges to medical home

**Family
support**

**Working
with EI**

**Time constraints
and financial
constraints**

- Working with community agencies

Before one month

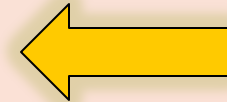
Outpatient Rescreening

- Hospital
- Audiologist
- Retesting in Primary Care facility
- OAE
- ABR



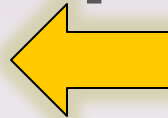
LTF/D

- Communication with family, hospital, audiologist
- Office protocol?
- Office staff can help
- Don't pass – DO TEST!!



Office Rescreening*

- How common?
 - 25% of pediatricians rescreen
 - NYS survey/Regional meetings
 - Many have OAEs in office
- Helpful to parents? Easier? Better?
- Who does it and are they trained?
 - Techs
- OAE? ABR? Both?
- Initial screen?
 - NY - 23%
- Need to report to State EHDI programs
 - Only 12% in NY



“Do not pass” - Parental support

Explain and discuss results

- Importance of hearing loss

Use language that encourages follow-up

Avoid negative and meaningless words

Be sensitive to cultural meanings of words

ALWAYS RETEST!!

Assist in arranging retest and **FOLLOW-UP**



Before 3 months

“Pediatric” audiological evaluation

Report to state EHDI

Early Intervention



Family support, education and information

Medical and ENT evaluation* – Genetics, Eye

Hearing aids – if desired

Remember!

- At least 90% of children who are either born deaf or lose their hearing are born to hearing parents



- Conversely, 90% of the children of deaf parents are hearing

Most important predictor of success is meaningful and effective family involvement

Support reduces parental stress

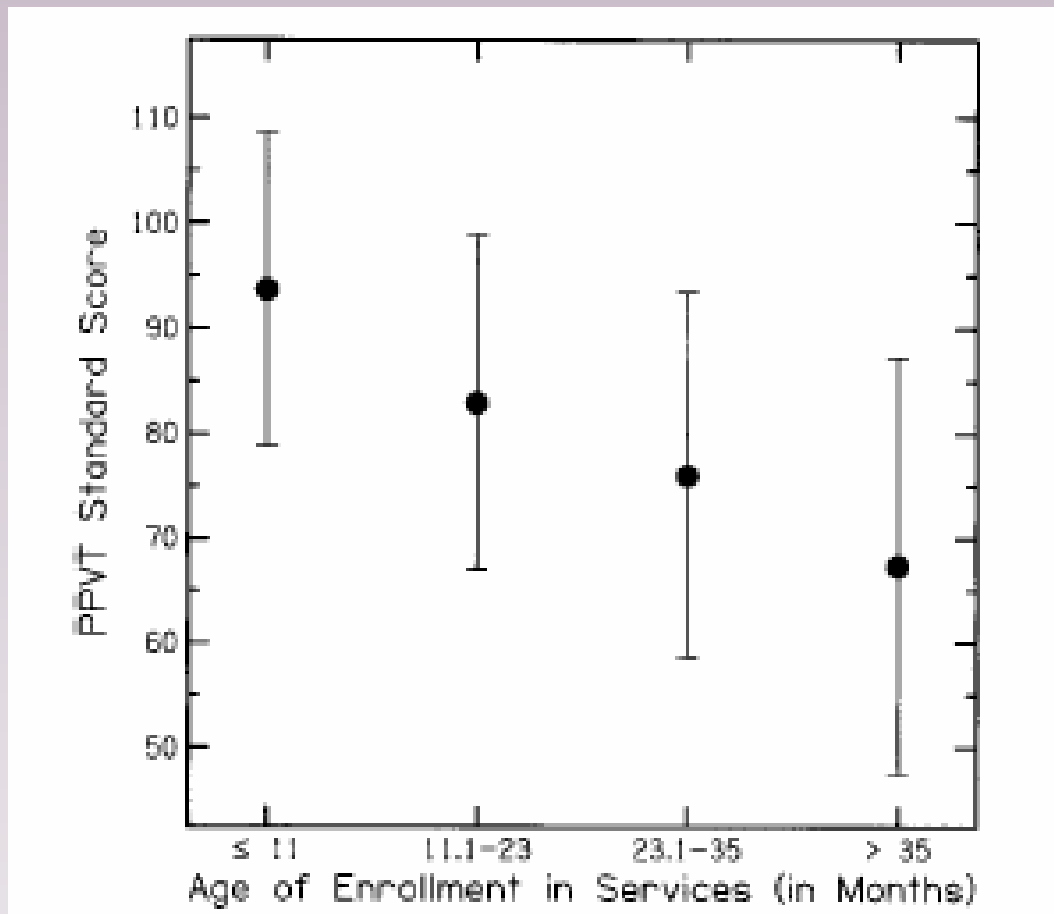
Direct parent-to-parent support ranks as one of the strongest measures of family support – Hands & Voices

Less than 50% received support that they needed

Parents were more likely to get support when encouraged

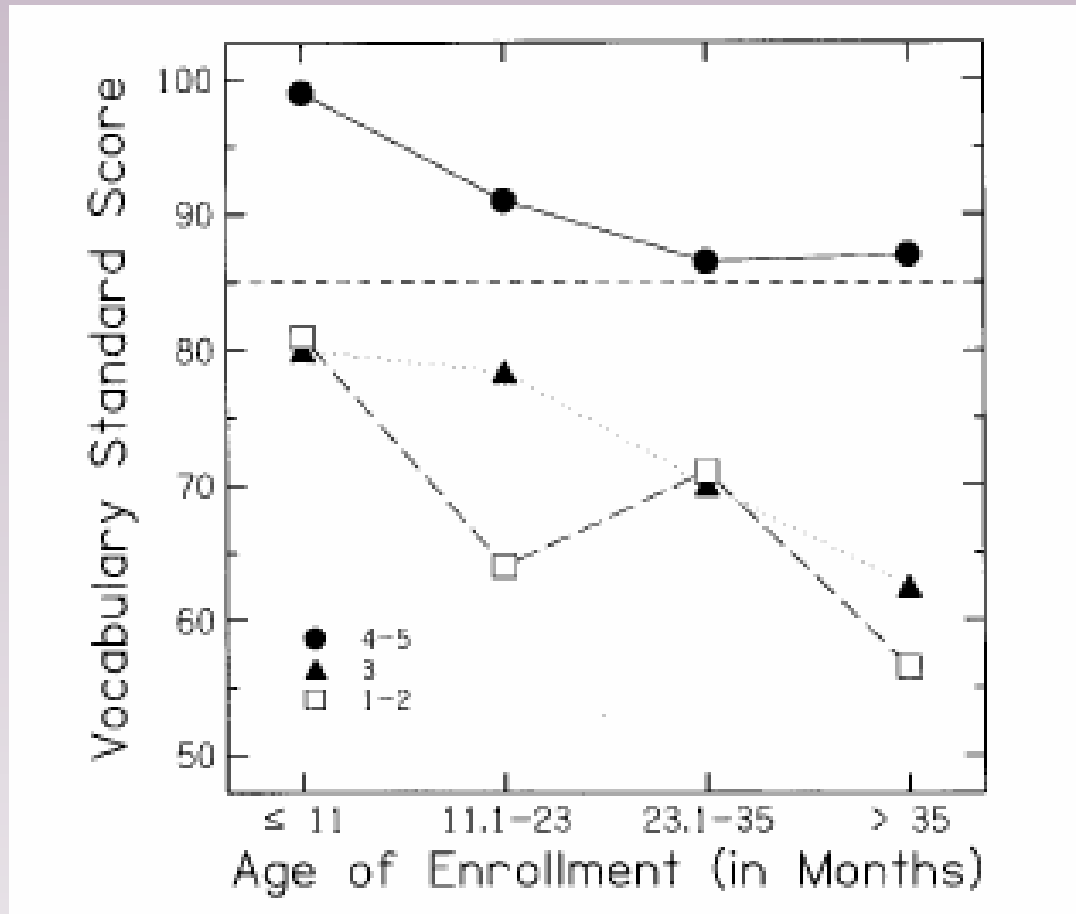
Face-to-face interaction with professionals – major importance

Means and SDs of PPVT scores for subjects as a function of age of enrollment in intervention.



Moeller M P Pediatrics 2000;106:e43

Mean vocabulary scores plotted as a function of the two key variables, age of enrollment and family involvement ratings.



Moeller M P Pediatrics 2000;106:e43

Before 6 months

**Early
Intervention
services**



**Etiology and
associated
problems**

- ENT
- Eye
- Genetics
- Neurology, Developmental Pediatrics and others if needed

**Audiological
follow-up**





1/3 of children
with hearing
loss have
another major
disability!

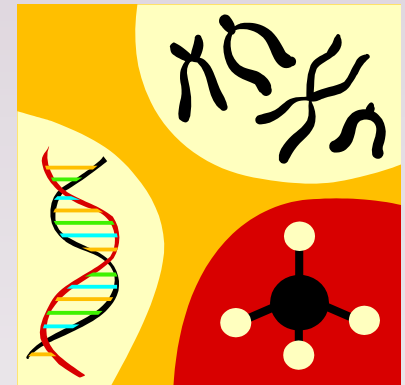
Genetics

Genetic counseling

- Future children - recessive
- Other family members may be effected
- Etiology/diagnosis – why?

Syndromes

- Trisomy 21
- Usher Syndrome - Retinitis pigmentosa
- Treacher-Collins – cranio-facial abnormalities
- Jervell and Lange-Nielsen syndrome
 - Prolonged QT, sudden death



EYE examination

**Optimize vision –
coexisting vision issues**

- Common in both syndromic and non-syndromic causes

**Assess findings of
syndromes and etiology**

**Retinal findings of CMV
and toxoplasmosis**



ENT Imaging

Status of cochlea, cochlear nerve and middle ear?

Imaging of the temporal bones – may help in etiology

Abnormal in about 30% of patients

- More likely with asymmetric hearing impairments
- Abnormal architecture of the inner ear

Most commonly large vestibular aqueduct

- Often progressive
- Trauma can make worse – sports?
- MRI/CT scan - ?age – 8-9 months

JCIH Risk Factors* - 40% of Hearing Loss Occurs after Newborn Period

Family history of hearing loss

NICU graduates

Intrauterine infections like CMV

Craniofacial, genetic and neurological conditions

Serious head trauma – child abuse

Meningitis

Chemotherapy



Ongoing Care – “Bright Futures”

- Provide information about hearing, speech and developmental issues
- Aggressively treat middle ear disease (tympanometry)
- Routine hearing and vision screening (OAE, Sweep) – Referral to audiologist if not passed
- Developmental/autism screening – only 20% screen
- Referral if parental or PCP concern
- Refer if risk factor by 24 to 30 months - CMV
- Audiological evaluation of developmentally delayed or uncooperative children



AAP EHDI LTF/D Background Resources

GLOSSARY OF TERMS FOR NEWBORN HEARING SCREENING

The American Academy of Pediatrics (AAP) Early Hearing Detection and Intervention (EHDI) Loss to Follow up/ Documentation (LTF/D) Workgroup has compiled a glossary of terms important to newborn hearing screening and resources related to LTF/D.

TERM	DEFINITION
Newborn hearing screening (NBHS)	Hearing screening performed shortly after birth, typically performed in hospitals prior to discharge involving the use of OAE or AABR.
Otoacoustic Emissions (OAE)	This test measures a response produced by the cochlea (outer hair cells) when a sound is presented to the ear. To conduct the test, a tiny probe is placed just inside the baby's ear canal and a soft click is presented, a tiny microphone measures the response produced by the baby's ear. The test is quick (about 5 to 10 minutes), painless, and may be done while the baby is sleeping or lying still. Thus, OAEs reflect the status of the peripheral auditory system extending to the cochlear outer hair cells.
Automated Auditory Brainstem Response (AABR)	This screening test measures how the hearing nerve responds to sound. Clicks are presented to the ear through a probe or soft earphones, and the neural response is measured through three electrodes placed on the baby's head. Automated ABR measurements reflect the status of the peripheral auditory system, the eighth nerve, and the brainstem auditory pathway.
Outpatient rescreening	An outpatient rescreening can take place at any of the following: <ol style="list-style-type: none"> 1. Hospital: Hospital screening protocols vary, and often include an outpatient screening stage. The specific technology used to conduct the outpatient screening should be based on the knowledge of how the inpatient screening was conducted. For example, when a baby fails an inpatient A-ABR screening, the outpatient screening must be conducted using A-ABR; if OAE is used auditory neuropathy will be missed. Some hospitals will do the rescreen before the baby leaves the hospital. 2. Provider Office: Ideally the initial newborn hearing screening and rescreening (if necessary) will take place at the birthing hospital. However, in some cases once the baby is discharged from the hospital, a provider may conduct a rescreen in the office as needed. 3. Audiologist: Similar to the provider office, a rescreen may also take place at the audiologist office.
Lost to follow up	For infant who did not pass newborn hearing screening, "lost to follow-up" refers to a failure to receive the next step of treatment, be it rescreen or comprehensive audiological evaluation.
Lost to documentation	Failure to report the results from hearing screening, rescreening, diagnostic services, and/or treatment services which are needed for comprehensive surveillance and monitoring by EHDI and the medical.
Lost to treatment	Failure for a child with an identified hearing loss to receive needed therapeutic services and failure for families to receive needed information to support decisions regarding treatment options.
Medical home	A model for providing high quality primary care that addresses and integrates health promotion, acute care and chronic condition management in a planned, coordinated, and family-centered manner.
Late onset hearing loss	A hearing loss that is not present at birth and the newborn hearing screening would result in "pass".
Auditory Neuropathy	Children with auditory neuropathy have evidence of normal cochlear function, but show impairment in the function of the auditory nerve. Functional hearing can often be quite impaired and diagnosis and treatment can be confusing and complicated.

NEWBORN HEARING SCREENING: LOST TO DOCUMENTED FOLLOW UP CONSIDERATIONS FOR THE MEDICAL HOME



Since 2000, the percentage of newborns screened for hearing loss dramatically increased from 52 to 95 percent. However, almost half of the children who "do not pass" hearing screening tests lack a documented diagnosis. The infant's primary care medical home provider plays an important role in ensuring that timely follow up and the appropriate documentation of that follow up occur. Without the active assistance of the medical home the infant may be considered "lost" in the early hearing detection and intervention (EHDI) system, which undermines the potential benefits of newborn hearing screening. A "wait and see" approach is never appropriate.

An infant who does not pass his/her newborn hearing screen has a potential **developmental emergency!**

"Do not pass includes babies that have "failed" or missed the hearing screening or for those who had an invalid, un-interpretable result.

WHAT CAN A NEWBORN IDENTIFIED WITH POSSIBLE HEARING LOSS BE "LOST" TO?

Lost to follow up: For infants who did not pass newborn hearing screening, "lost to follow-up" refers to a failure to receive the next step of treatment, be it rescreen or comprehensive audiological evaluation.

Lost to documentation: Failure to report the results from hearing screening, rescreening, diagnostic services, and/or treatment services to the state EHDI program and the medical home. This data is needed for comprehensive surveillance and monitoring to ensure infants receive recommended services. Lost to documentation can mean:

- Hospital does not record and/or report results of first screen
- Hospital does not record and/or report results of second screen
- Audiologist does not report results
- Medical home provider does not record and or report the results of the rescreen

Lost to treatment: Failure for a child with an identified hearing loss to receive needed therapeutic services and failure for families to receive needed information to support decisions regarding treatment options

WHAT IS THE MEDICAL HOME'S ROLE IN REDUCING THE PERCENTAGE OF INFANTS THAT DO NOT PASS THE NEWBORN HEARING SCREEN AND WHO ARE THEN CONSIDERED LOST TO DOCUMENTED FOLLOW UP?

The following information outlines specific actions the medical home can take to reduce the percentage of infants who do not pass a newborn hearing screen who either do not receive follow up care or whom follow up is not reported back to the state EHDI programs. *It is important to note that the actions outlined below are specific to reducing lost to documented follow up. There are many more recommendations for providers for the overall EHDI process that are not listed here. For additional information, please see the [2007 Joint Committee on Infant Hearing Position Statement](#) and [EHDI Guidelines for Pediatric Medical Home Providers](#).*

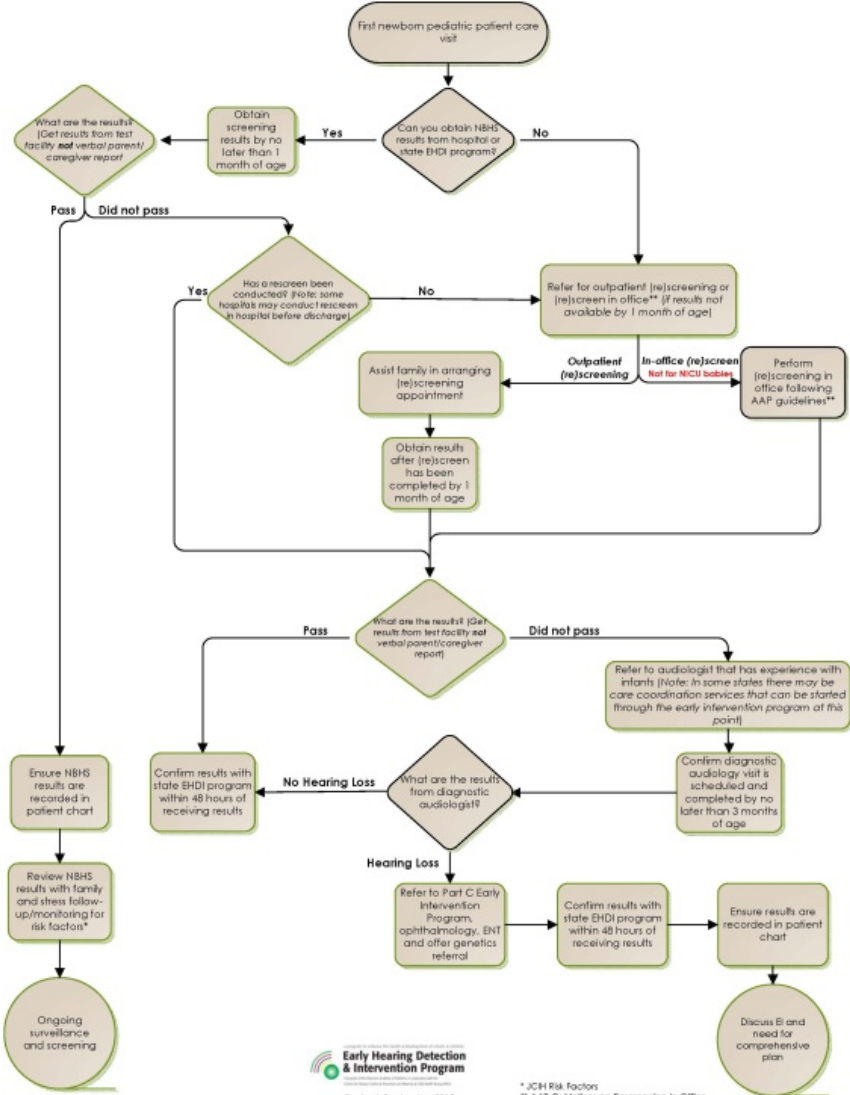
PRACTICE CONSIDERATIONS

Medical homes should obtain, document, and discuss all screening test results and risk factors** which includes:

- Confirm that initial newborn hearing screening results have been obtained for all infants as soon as results are available but no later than 1 month. If results are not received, obtain results from

AAP EHDI LTF/D Guidelines & Checklist

Reducing Loss to Follow-Up/Documentation in Newborn Hearing Screening: Guidelines for Medical Home Providers



1-3-6 NEWBORN HEARING SCREENING CHECKLIST

Patient Name:	Patient DOB:	Date of Visit:
1 INITIAL SCREENING (by no later than 1 month of age)		
Has the child had a newborn hearing screening?	Yes No ⇄	Schedule initial screen
Did you obtain the test results from the screening hospital or state EHDI program?	Yes No ⇄	Contact the hospital or state EHDI program
Are the results recording in the patient's chart?	Yes No ⇄	Record test results in patient chart
Did the child pass the newborn hearing screening?	Yes No ⇄	Schedule rescreen appointment
Have the results been reported to the state EHDI program?	Yes No ⇄	Confirm results have been reported to state EHDI program within 48 hours of receiving them.
Have results been discussed with family?	Yes No ⇄	<input type="checkbox"/> For a child that passed, stress the importance of ongoing surveillance and risk factors* <input type="checkbox"/> For a child that did not pass, discuss the need for follow-up and assist in arranging a rescreening
Has a rescreening occurred (if the initial screen resulted in 'did not pass' or if otherwise necessary)?	Yes No ⇄	Schedule rescreen appointment
RESCREENING (by no later than 1 month of age)		
Where will the rescreening be performed?	<input type="checkbox"/> Hospital: <input type="checkbox"/> Office <input type="checkbox"/> Other (specify): _____	
✓ If hospital/outpatient center, when is the rescreening appointment?	Location: _____	
✓ If conducted in office:	Date: _____	
• Determine what screening equipment was used at the hospital.		
• Follow the AAP office rescreening guidelines.		
Did the child pass the rescreening?	Yes No ⇄	Send child to audiologist with pediatric expertise for diagnostic evaluation.
Are the results recorded in the patient chart?	Yes No ⇄	Record results in patient chart.
Have the results been discussed with the family?	Yes No ⇄	<input type="checkbox"/> For a child that passed, stress the importance of ongoing surveillance and risk factors* <input type="checkbox"/> For a child that did not pass, discuss the need for follow-up and assist in arranging an audiological evaluation
Have the results been reported?	Yes No ⇄	Confirm results have been reported to state EHDI program within 48 hours of receipt
3 DIAGNOSTIC EVALUATION (by no later than 3 months of age)		
If the child did not pass the rescreening, was he/she referred to an audiologist with expertise in pediatrics?	Yes Provider: _____ Date of Visit: _____	No ⇄ Refer to audiologist with expertise in pediatrics
Were the results of the diagnostic test normal?	Yes No ⇄	Discuss EI and need for comprehensive plan
Have the results been discussed with the family?	Yes No ⇄	<input type="checkbox"/> For a child that passed, stress the importance of ongoing surveillance and risk factors* <input type="checkbox"/> For a child that did not pass, discuss EI and need for comprehensive plan
Have the results been reported?	Yes No ⇄	Confirm results have been reported back to state EHDI program within 48 hours of receipt
6 EARLY INTERVENTION (by no later than 6 months of age)		
If the child was diagnosed with a hearing loss, was he/she referred for early intervention and multi-disciplinary evaluation?	Yes Date of visit: _____	No ⇄ Provide early intervention referral and ophthalmology, and ENT, offer genetics
ONGOING SURVEILLANCE AND SCREENING		
Continue to perform ongoing surveillance and screening for late-onset hearing loss—particularly those children with risk factors.		

Medical Home and LTF/D AAP EHDI Tools

Obtain, document, and discuss all screening test results and risk factors by one month

- Whenever possible information should be received from the hospital rather than the parent
- Work with local birthing facilities to establish best method for obtaining test results

Coordinate care of a child that has a 'do not pass' screening result or for whom you cannot obtain the documented screening results

- Either screen, rescreen or arrange screen or rescreen by one month
- Medical Home takes lead in scheduling - Assist parents with rescreen appointment

Medical Home and LTF/D AAP EHDI Tools

Confirm results with state EHDI program within 48 hours

- Need to learn state reporting program

IF 'do not pass' the second screen, refer to audiologist that has experience with infants and ensure follow-up appointment is scheduled

- Confirm appointments and notify state EHDI program
- refer to CDC EHDI Directory – EHDI PALS

Ensure family is referred to local EI program

- Medical home should get parent/family to release medical information/records to PCP so they can obtain the results

Medical Home and LTF/D AAP EHDI Tools

Dedicated staff
person in the practice

- Obtain all screening results
- Coordinate the education/support of families
- Relationship with State EHDI program

Provide education
and support to
families

- Hearing, speech, and language milestones
- Discuss and explain all test results, next steps, and importance of follow-up
- Confirm with family that follow-up appointments have been made and kept
- Help to arrange transportation and social service support

Culturally competent
and health literate
appropriate
information

- Hands and Voices, Guide-By-Your-Side, NCHAM, etc.
- Educational options

AAP EHDI LTF/D Rescreening Guidelines



AAP HEARING SCREENING GUIDELINES FOR MEDICAL HOMES

GUIDELINES AT A GLANCE:

- ✓ Except in rare circumstances, Medical homes should NOT conduct the initial newborn hearing screening
- ✓ Proper equipment (e.g. AABR) is required for screening in order NOT to miss auditory neuropathy. For this reason, it is very important that the medical home know what screening equipment is used at their local birthing facilities.
- ✓ If you are conducting a hearing screening, you are obligated to report the results to the state EHDI program

If the medical home will be performing a hearing re-screening, the following are crucial to a successful screening:

REPORTING

- Re-screening in the medical office comes with an important **obligation to report all** normal and abnormal **screening results** to the state EHDI system (and in some states it is required by law).
- To find your EHDI state coordinators: <http://www.infanthearing.org/status/cnhs.html>.

EQUIPMENT

- Re-screening of infants must be performed by a **physiologic measurement**, not by assessing behavioral responses to environmental sounds or noises. Currently, the technology that is most commonly available and affordable for such office-based re-screening is "otoacoustic emission" or "OAE" technology.
- The equipment used for re-screening must be **calibrated by the manufacturer**, with a declaration that the device is capable of separating "pass" from "not-pass" at a level that can detect a hearing loss of at least 30 dB.
- The equipment must be **maintained and recalibrated on a regular basis (at least annually)** or more frequently if recommended by the manufacturer.
- Babies with auditory neuropathy will pass an OAE (normal middle and inner ear function) but not pass an AABR (nerve deficits). If an infant does not pass an automated ABR screening (AABR) in the hospital and then passes an OAE, it DOES NOT assure normal hearing. This child must be re-screened with an AABR. If however, the infant does not pass the OAE than a hearing loss is likely and the infant must be referred immediately for further evaluation.
- Infants who were hospitalized in the newborn intensive care unit (NICU) are at much higher risk for hearing loss, particularly auditory neuropathy which can only be determined with an AABR or ABR. These babies should only be screened with an AABR and if they do not pass, they should be referred to an audiologist with experience with infants to perform a rescreen with an AABR.

PROPER SCREENING TECHNIQUE

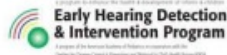
- It is best to have a **quiet environment** for office-based testing to minimize the risk of ambient noise interfering with the screening results.
- Office personnel who perform the re-screening should be **trained and experienced** in screening infants and children.
- It is important that the infant is only re-screened at a single visit in the office so that there is no delay in identification of infants with hearing loss. They should be referred to a qualified infant audiologist.
- During the re-screening visit, there should be no more three tests of each ear with the OAE probe. If after three probe tests, the ear or ears do not pass the baby should be referred to a qualified infant audiologist.
- At the time of re-screening, **both ears should always be tested**, even if only one ear did not pass the hospital-based hearing screening test.

COMMUNICATION OF RESULTS TO FAMILY

- Screening results should be conveyed to families in a culturally competent, sensitive manner to ensure understanding.
- The results of hearing screening should be explained to families in a way that conveys the screen is not a definitive diagnosis so as not to cause undue anxiety, but **strongly** encourages the family to take the next appropriate step in adhering with a diagnostic testing.

DELAYED-ONSET HEARING LOSS

- A passing screen at birth does not assure that delayed-onset hearing loss will not later be diagnosed
- Referral for pediatric audiology evaluation should be made when there is caregiver concern about hearing, a delay in the child's language development, or when there are identified JCIH risk factors for childhood hearing loss.



Guidelines at a glance:

✓ Except in rare circumstances, medical homes should NOT conduct the initial newborn hearing screening.

✓ In some circumstances an AABR may be warranted to rule out auditory neuropathy.

✓ If you are conducting a hearing screening, you are obligated to report the results to the state EHDI program.

NICU graduates

TOP Trusted Sources

- **(1) Pediatricians (58%)**
- (2) Friends and family (55%)
- (3) Evening news (39%)
- (4) Internet searches (38%)
- (5) Physician office (37%)
- (6) Web sites (33%)
- (7) Parenting books (32%)
- (8) Morning TV talk shows (31%)
- (9) Newspaper articles (28%)
- (10) Magazine articles (25%)

CDC data



How to Reach PCPs?

Decide who you want to reach? Who is reachable?

Face to face visits

- Physician champion - enthusiastic
- Office managers – make appointment
- Brief and focused
- Bring gifts ☺

Web site with online/printable materials

- Handouts – patient education
- “Just-in-time” – desktop
- Journals?

Mobile applications

- Younger
- Must be easy to use

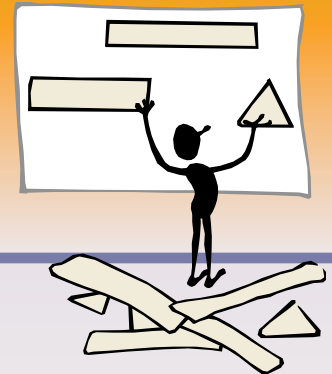
Less Effective

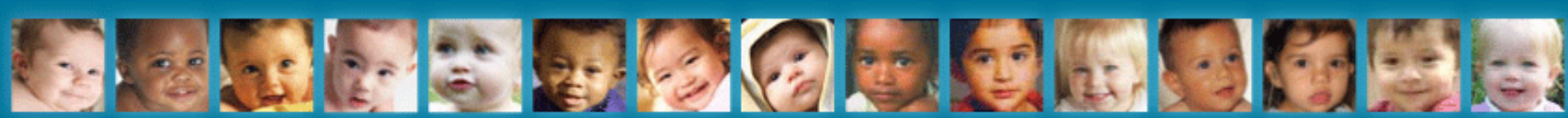
- Conference/phone calls
- Grand rounds ?
- Clinical guidelines

Can the Medical Home Reduce LTF/D?

It's tough to make predictions,
especially about the future.

Yogi Berra





Find these resources at:

[http://www.infanthearing.org/
medicalhome/index.html](http://www.infanthearing.org/medicalhome/index.html)

[**http://www.aap.org/en-us/advocacy-
and-policy/aap-health-initiatives/
PEHDIC/Pages/Early-Hearing-
Detection-and-Intervention.aspx**](http://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/PEHDIC/Pages/Early-Hearing-Detection-and-Intervention.aspx)



**Please type questions or comments in
the chat box.**

**This session will be posted on our EHDI
website for future viewing.**

Thank you for your participation!

Are Confident People More Accurate?

How confident are you in talking to parents of a child with permanent hearing loss about who is a candidate for CI's?	Are children with bilateral mild-moderate hearing loss candidates for a cochlear Implant?	
	Yes	No
Very Confident	87.3%	12.7%
Somewhat Confident	73.8%	26.2%
Not Confident	69.7%	30.3%

Note: Data only from 2012 survey

Did your training prepare you adequately to meet the needs of infants with permanent hearing loss?

	Yes (n=383)	Unsure (n=618)	No (n=1056)
Routinely refer the family of a child with permanent hearing loss to a geneticist.	17.0%	9.7%	6.4%
Believe hearing aids can be fit for children 0 to 3 months of age.	46.9%	38.8%	36.3%
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants.	18.3%	30.6%	27.8%
Believe unilateral hearing loss affects speech and language development	73.1%	73.0%	73.9%

Years of practice with pediatric population

	0-10 Years (n=564)	10-20 Years (n=651)	20-30 Years (n=531)	30+ Years (n=300)
Routinely refer the family of a child with permanent hearing loss to a geneticist.	9.0%	10.9%	7.7%	9.3%
Believe hearing aids can be fit for children 0 to 3 months of age.	32.7%	38.6%	43.7%	41.6%
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants.	31.9%	29.2%	20.9%	20.3%
Believe unilateral hearing loss affects speech and language development	78.4%	75.3%	71.4%	63.3%

What percentage of your practice is comprised of infants or children 0-5 years of age?

	≤ 33% (n=1096)	34-65% (n=637)	≥ 66% (n=357)
Routinely refer the family of a child with permanent hearing loss to a geneticist.	6.8%	11.6%	13.7%
Believe hearing aids can be fit for children 0 to 3 months of age.	33.6%	43.9%	45.0%
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants.	23.4%	28.7%	30.8%
Believe unilateral hearing loss affects speech and language development	70.7%	74.4%	73.9%

Type of Provider

	Pediatrician (n=1152)	Family Practice Physician (n=587)	Otolaryngologist (n=155)	Neonatologist (n=67)	OB/GYN (n=12)	Nurse Practitioner (n=45)
FREQUENTLY receive informaton from your state EHDI program?	13.3%	7.3%	7.3%	14.3%	8.3%	8.9%
COMPLETE trust in newborn hearing screening results?	34.5%	33.5%	21.2%	42.4%	33.3%	38.6%
Believes that "Mother's age > 40 years" puts a child at increased risk for permanent hearing loss	14.5%	23.3%	6.5%	29.9%	25.0%	26.1%
Conducts in-office screening	26.7%	22.2%	77.8%	24.6%	--	28.9%

Type of Provider

	Pediatrician (n=1152)	Family Practice Physician (n=587)	Otolaryngologist (n=155)	Neonatologist (n=67)	OB/GYN (n=12)	Nurse Practitioner (n=37)
Routinely refer the family of a child with permanent hearing loss to a geneticist	10.9%	2.7%	27.1%	9.0%	0.0%	6.5%
Believe hearing aids can be fit for children 0 to 3 months of age	43.1%	29.1%	47.9%	46.5%	36.4%	40.5%
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants.	30.0%	23.3%	6.5%	29.9%	25.0%	26.1%
Believe unilateral hearing loss affects speech and language development.	75.2%	71.7%	66.5%	58.2%	66.7%	82.6%

Type of Provider and Setting

	Pediatrician (n=995)	Family Practice Physician (n=505)	Otolaryngologist (n=116)	Nurse Practitioner (n=37)
Conducts in-office hearing screening	27.1	23.1	78.9	30.6
	17.2	27.8	84.2	
Routinely refers the family of a child with permanent hearing loss to a geneticist	9.9	3.0	23.3	8.1
	13.8	5.6	57.9	
Believes hearing aids can be fit for children 0-3 months of age	42.7	29.8	45.6	41.9
	46.2	20.0	50.0	
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants	30.5	24.0	7.8	24.3
	10.3	16.7	0.0	
Believe that "Mothers age > 40 years" puts a child at increased risk for permanent hearing loss	15.0	23.0	32.8	21.6
	13.8	16.7	26.3	

Private practice or community clinic (n=1,747)

Medical School (n=81)

Type of Provider

	Pediatrician (n=1152)	Family Practice Physician (n=587)	Otolaryngologist (n=155)	Neonatologist (n=67)	OB/GYN (n=12)	Nurse Practitioner (n=37)
Routinely refer the family of a child with permanent hearing loss to a geneticist	10.9%	2.7%	27.1%	9.0%	0.0%	6.5%
Believe hearing aids can be fit for children 0 to 3 months of age	43.1%	29.1%	47.9%	46.5%	36.4%	40.5%
Believe infants with bilateral mild-moderate hearing loss are candidates for cochlear implants.	30.0%	23.3%	6.5%	29.9%	25.0%	26.1%
Believe unilateral hearing loss affects speech and language development.	75.2%	71.7%	66.5%	58.2%	66.7%	82.6%