

THE MANAGEMENT OF CHILDREN FAILING THE SCREENING

Michael Tsakanikos

ENT Dept 'P&A Kyriakou' Children's Hospital Of Athens. Greece

A universal screening program should accurately test all infants and track all who test positive to ensure proper follow up and, when needed, treatment.

*The Rhode Island Hearing Assessment Program
The Children's Primary Care Research Group/ Univ.N.Carolina*

The methodology of screening should have a false-positive rate, ie, the proportion of infants without hearing loss who are labeled incorrectly by the screening process as having significant hearing loss (H.L), of $<3\%$.

The referral rate for audiologic and medical evaluation after the screening process (in-hospital during birth admission or during both birth admission and outpatient follow-up screening) should be 4% or less within 1 year of program initiation.

Possible reasons of failing and referral

True pathology (HL > 35-40 db) 1-2 /1000 W.B
14 times more in HR

False positives Middle ear effusion
 Technical reasons
 Personel experience

False negatives Retrocochlear HL (especially in HR)
 Delayed HL ?

Possible reasons of failing and referral

True pathology (HL > 35-40 db)

The fact that no reliable methods other than UNHS are currently available for detection of a low-degree hearing impairment in neonates is a strong argument in favour of UNHS.

D.Nekahm, K.Welzl-Muller et.al, 2001

False positives and Referral rates range in different protocols

| | | | |
|-------|-------------------|-----------|-------|
| EOAEs | in the first 24 h | ref.rates | 5-20% |
| | in 24-48h | ref.rates | <3% |

A two-step screening system using EOAEs and AABR before discharge can reduce the ref.rate to 0.5%

Task Force on Newborn and Infant Hearing
The false positive in UNHS. Clemens et al. 2000. Univ. N. Carolina
Tyrol UNHS
The New York UNHS
The NHSP in England, 2003

Refuse of parents to re-test

This is certainly critical and shows that all attempts at early detection are in vain if parents do not cooperate.

Therefore care have taken to establish suitable institutional structures to ensure that a child once detected is reliably referred for further diagnostic and interventional measures.

In Colorado UNHS parent refusal rates for re-test 0.4%

Lost To Follow-Up

A minimum of 95% successful follow up is required for a UNHSP to be considered an effective screening program.

The number of children who lost to follow up after failing the first test is a major problem.

The follow up rates range in different programs 76-81%

“Sequelae” of failing and referral

Anxiety of parents and family

Refuse of parents to re-test

The family of the newborn has the right to confidentiality of the screening and follow-up assessments and the acceptance or rejection of suggested intervention.

JCIH/Year 2000 Position Statement

Anxiety of parents and family

Little is known about parent preferences, including their feeling regarding false-positive screening results.

It has been suggested that the harm of a false-positive hearing screening result in a newborn is minimal.

However, significant psychological distress has been reported with other false-positive results, such as maternal serum α -fetoprotein level for Down s. or mammography for breast cancer.

In our experience parents remain anxious and under dispute till the final results.

Anxiety of parents and family

How can we reduce that?

Reducing the Hearing Screening failing rate (2 stage scr.)

Many inpatient screening protocols provide 1 or more repeat screens, using the same or different technology, if the newborn does not pass the initial birth screen.

For example, hospitals may screen with OAEs or ABR and retest infants who “refer” with the same or the other technology.

Providing more information and contact to the parents
i.e ‘The introduction of family friendly hearing services’

Failing The Screening

What's The Next
Step???

In case of fail at re-screen an appointment is immediately arranged for hearing assessment – a point which is important in order to guarantee the follow up.

Confirmation of hearing status

WHEN ?

All infants referred from UNHS (who do not pass the birth admission screen and any subsequent re-screening) begin appropriate audiologic and medical evaluations before 3 months of age or *3 months after discharge for NICU infants*, to confirm the hearing loss.

Most UNHSP designs agree, for the neonates failing the initial screen to be retest 4 to 6 weeks of age

(Outpatient screening by 1 month of age should also be available to infant who were discharged before receiving the birth admission screening or who were born outside a hospital or birthing center).

Children failing and the 2nd stage are referred for

Diagnostic evaluation at 12-16 weeks of age

WHO ?

Professionals with expertise in pediatric audiology
(audiologist, Otolaryngologist)

‘For the follow-up component, audiologists (and otolaryngologists) provide comprehensive audiologic assessment to confirm the existence of the hearing loss, and ensure prompt referral to early intervention programs.’

WHERE?

Pediatric Audiological Center

Confirmation of hearing loss

HOW ?

Audiologic Evaluation

The initial audiologic test battery must include

Middle ear measurements

Acoustic reflex thresholds

OAEs

ABR

Confirmation of hearing loss

Medical Evaluation

Otologic and other medical evaluation

Clinical history

Family history

Physical examination

Laboratory studies

Personel

Pediatric otolaryngologist, pediatrician

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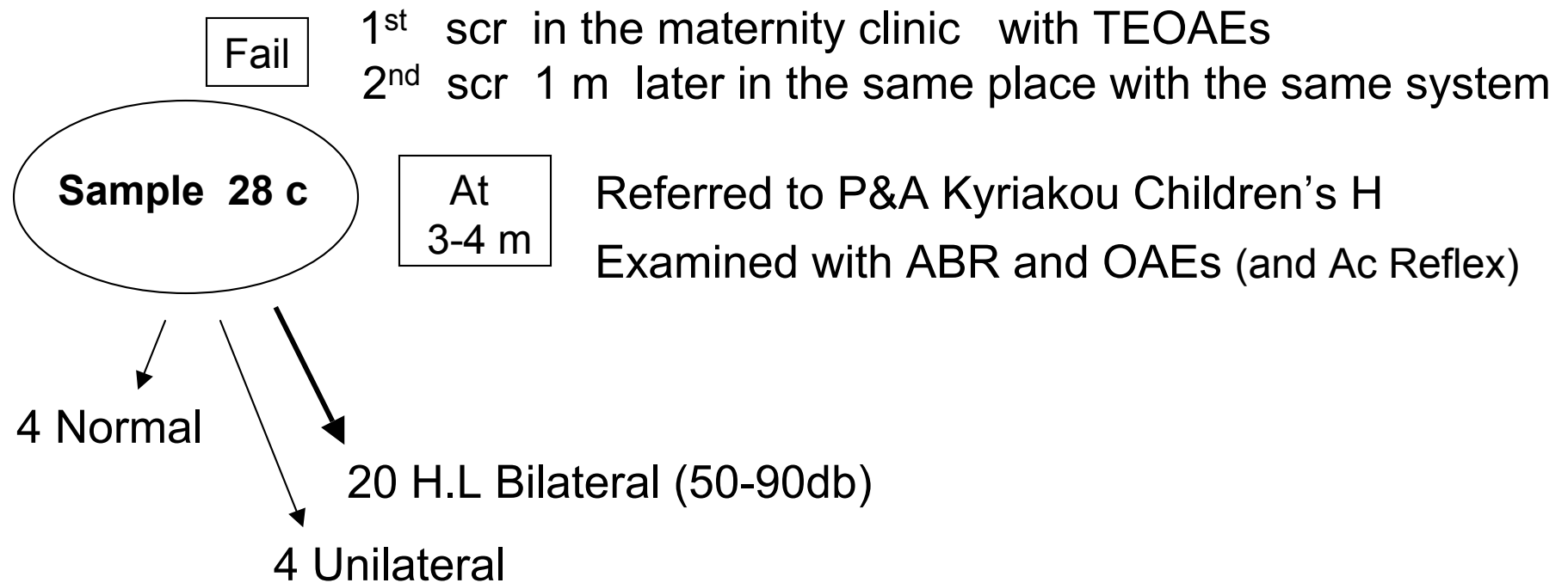
NHS PROGRAMMES

30% neonates

| HOSPITAL | YEAR | METHODS | MATERIAL | FOLLOW-UP |
|---|------|----------|-----------------------------------|---------------------|
| P&A KYRIAKOU CHILDREN'S H | 1991 | ABR-OAEs | NICU | 3 m ABR OAEs |
| ARISTOTELIO UNIV. ENT | 1995 | DPOAEs | H.R | 3m ABR OAEs |
| A.SOFIA CHILDREN'S H | 1995 | TEOAEs | H.R | 3m ABR OAEs |
| IOANNINA UNIV. ENT | 1996 | DPOAEs | H.R | 3m ABR OAEs |
| IASO PRIVATE MAT.CLINIC | 1997 | TEOAEs | UNIVERSAL Since 2002 | 1m / 3m OAEs ABR |
| MITERA PRIVATE MAT.CLINIC | 1998 | TEOAEs | TARRGET after Parents agreeem. | 1m / 3m OAEs ABR |
| LETO PRIVATE MAT.CLINIC | 2002 | TEOAEs | TARRGET after Parents agreeem. | 1m / 3m OAEs ABR |

GREECE NHS PROGRAMMES

CHILDREN FAILED AND REFERRED TO PED.AUDIOLOGY DEPT



TOTAL POPULATION:10.538.086
LIVE BIRTHS:100.625
(St.Year 1999)



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Successful follow-up is influenced by factors as

Lack of adequate tracking information

Changes in the names or addresses of mother and/or infant

Absence of a designated home for the infant

Lack of health insurance that covers follow-up services?

Critical point

Although recent survey data suggest that the hospitals are successfully initiating universal screening, early hearing detection and intervention services including confirmation of hearing loss, fitting of amplification, and initiation of early intervention remain delayed.

For these reasons

Comprehensive services for infants and families referred after screening are coordinated between the infant's medical home, and related professionals with expertise in hearing loss and the state local agencies responsible for the provision of services to children with hearing loss

It is of most importance

National departments of health to

1. Establish and maintain a central monitoring system for all hearing screening programs within the state. Critical performance data, including number of infants born; the proportion of all infants screened; the referral rate; the follow-up rate; the false positive rate; the false negative rate; should be collected in a timely manner.
2. Establish and maintain a tracking program that monitors all referrals and misses.
3. Develop mechanisms for communicating results of follow-up activities with the parents/guardians and the child's physician, otolaryngologist/audiologist and speech language therapist