
# *Role of "Cross Check" in Early Intervention*

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# Introduction

- ✓ Hearing loss at birth is more common (~2/1000)
- ✓ Only about half of all newborns with hearing loss have known risk indicators (5-10% of all newborn are at risk)
- ✓ Targeted high-risk hearing screening violates the principles of equal access and universal rights
- ✓ Universal screening IS practicable and iS NOT costly

# Newborn Hearing Screening History

- ✓ 1965 - Babbidge Report (Report to the Secretary of HEW)

*Recommended the development and nationwide implementation of "universally applied procedures for early identification and evaluation of hearing impairment."*

- ✓ Legislation to screen "high risk" infants since 1985
  - *Primarily NICU babies*

# Newborn Hearing Screening History

- ✓ ***Well babies were not routinely screened***
  - *Half the children with PCHL do not exhibit risk factors (NCHAM, 2002)*

- ✓ 1990- Joint Committee on Infant Hearing (JCIH)

*"Recommended that high-risk infants be screened prior to their discharge from the hospital and no later than 3 months after their birth"*

# Newborn Hearing Screening History

- ✓ 1994 Strong lobbying began to implement Universal Newborn Hearing Screening **(UNHS)**
- ✓ *Newborn Hearing Screening Task Force formed*

- ✓ The JCIH Year 2000
  - ✓ *" Principles and Guidelines for for Early Hearing Detection and Intervention Programs" EHDI*

# Purpose of Universal Newborn Hearing Screening

- ✓ To provide early hearing **detection** & **intervention** (EHDI) to infants, in an attempt to minimize speech and language delays

*"EHDI and treatment before 6 months of age facilitate a child's healthy development consistent with age and cognitive ability"*

# Program Goals

- ✓ Hearing screening at birth, before discharge
- ✓ Diagnostic testing within 3 months of initial screen
- ✓ Referral to Early Intervention (Birth-to-Three) by 6 months

# Tips of Screening

- ✓ Screening occurs before discharge
- ✓ Infant can be tested in crib or parent's arms.
- ✓ Infant should be sleeping or resting quietly.
- ✓ Test environment should be as quiet and free from interruption
- ✓ Local infection control procedures should be followed

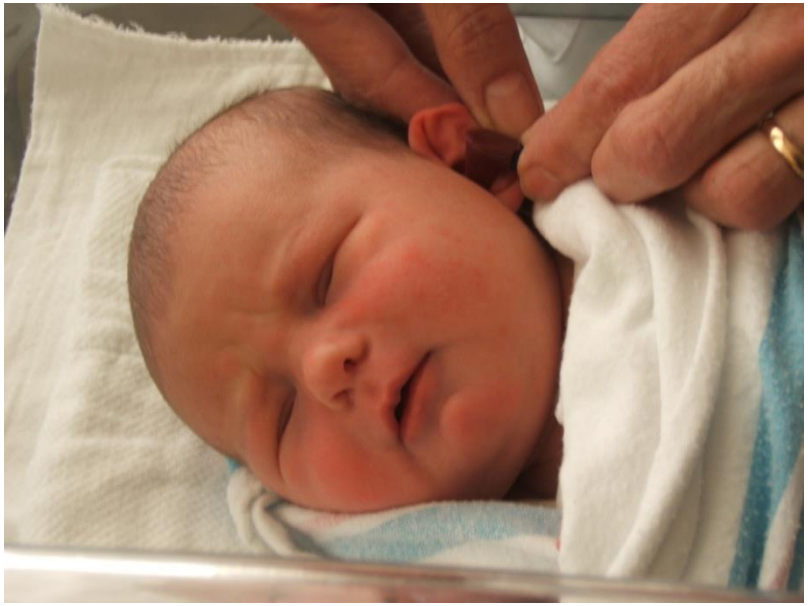
# Screening Methods

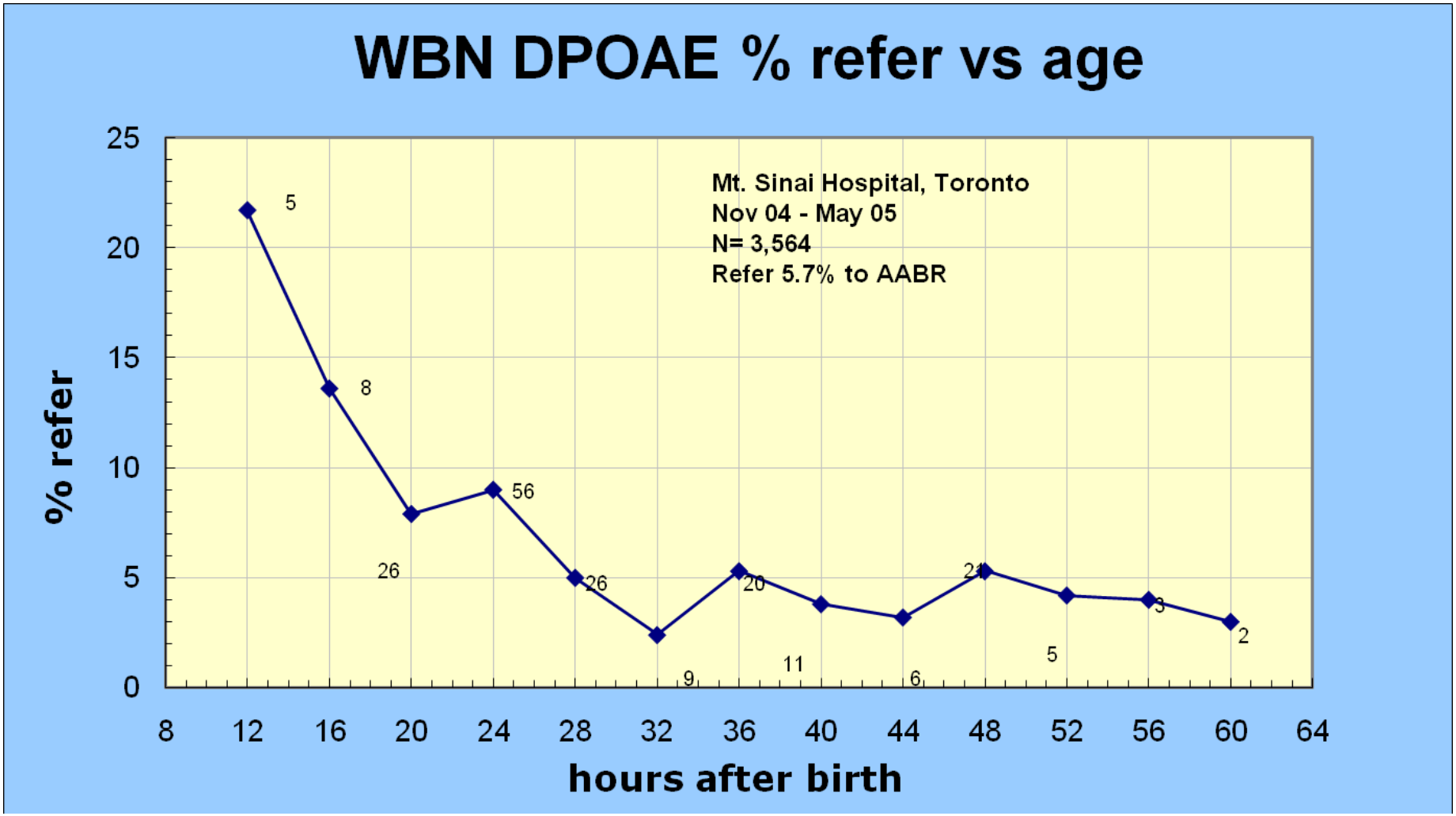
- **First screen:**

  ✓ Otoacoustic emissions (OAE)

  Or

  ✓ Automatic Brainstem Response (AABR)

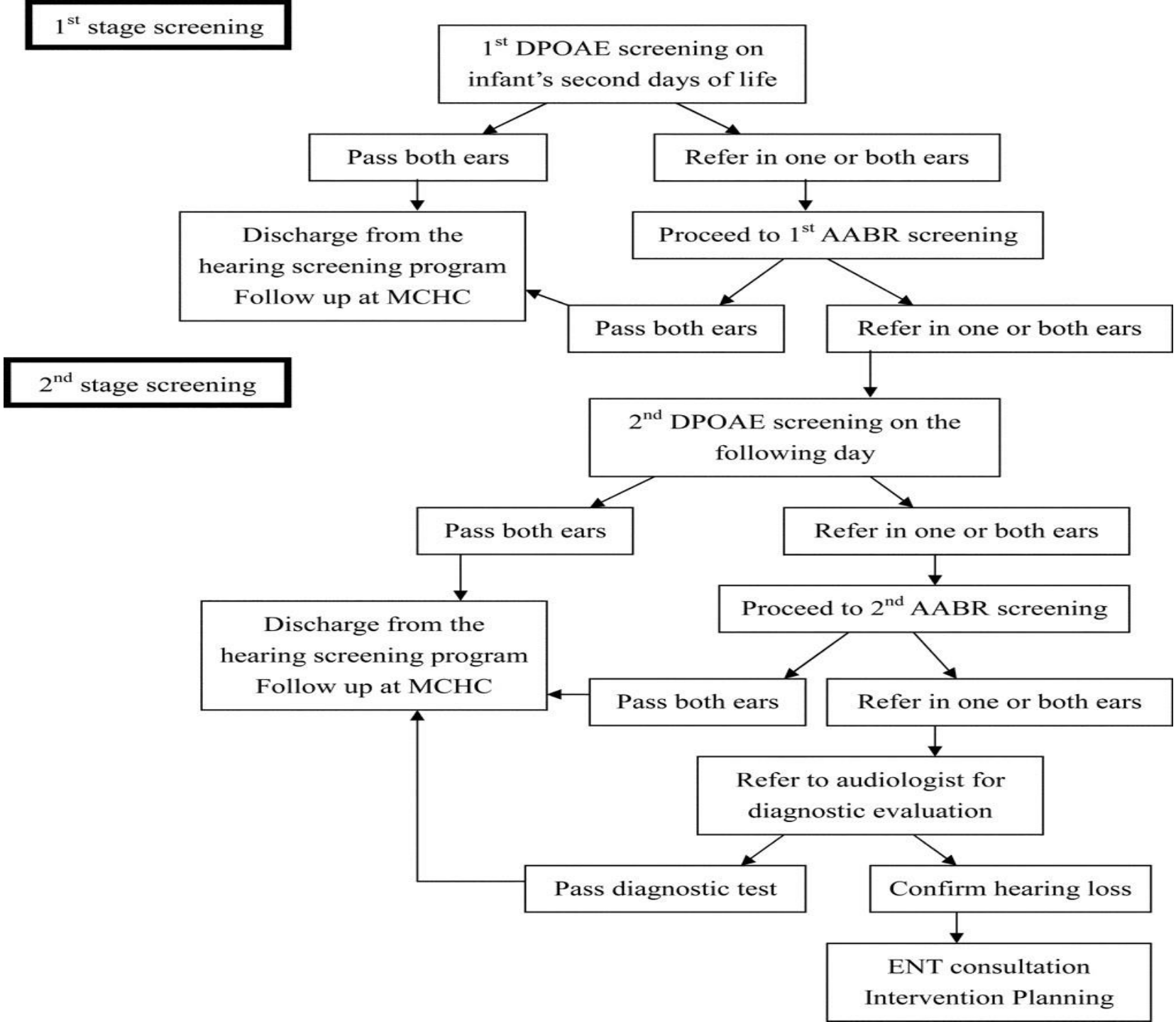



WBN DPOAE % refer vs age
Mt. Sinai Hospital, Toronto
Nov 04 - May 05
N= 3,564
Refer 5.7% to AABR
% refer
hours after birth
0
5
10
15
20
25
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
5
8
26
56
26
9
20
11
6
21
5
3
2

# Screening Methods

- **Second Screen:**

  - ✓ Repeated before discharge if infant does not pass the first screen
  - ✓ AABR


1st stage screening
1st DPOAE screening on infant's second days of life
Pass both ears
Refer in one or both ears
Discharge from the hearing screening program Follow up at MCHC
Proceed to 1st AABR screening
Pass both ears
Refer in one or both ears
2nd stage screening
2nd DPOAE screening on the following day
Pass both ears
Refer in one or both ears
Discharge from the hearing screening program Follow up at MCHC
Proceed to 2nd AABR screening
Pass both ears
Refer in one or both ears
Refer to audiologist for diagnostic evaluation
Pass diagnostic test
Confirm hearing loss
ENT consultation Intervention Planning

# ‘Best Practice Recommendations for Diagnostic Hearing Testing of Infants’

- ✓ Otoacoustic Emissions(OAE)

  *“Transient evoked or distortion product”*

- ✓ Immittance Testing

  *“Tympanometry with high frequency probe tone”*
  *“Acoustic reflex testing”*

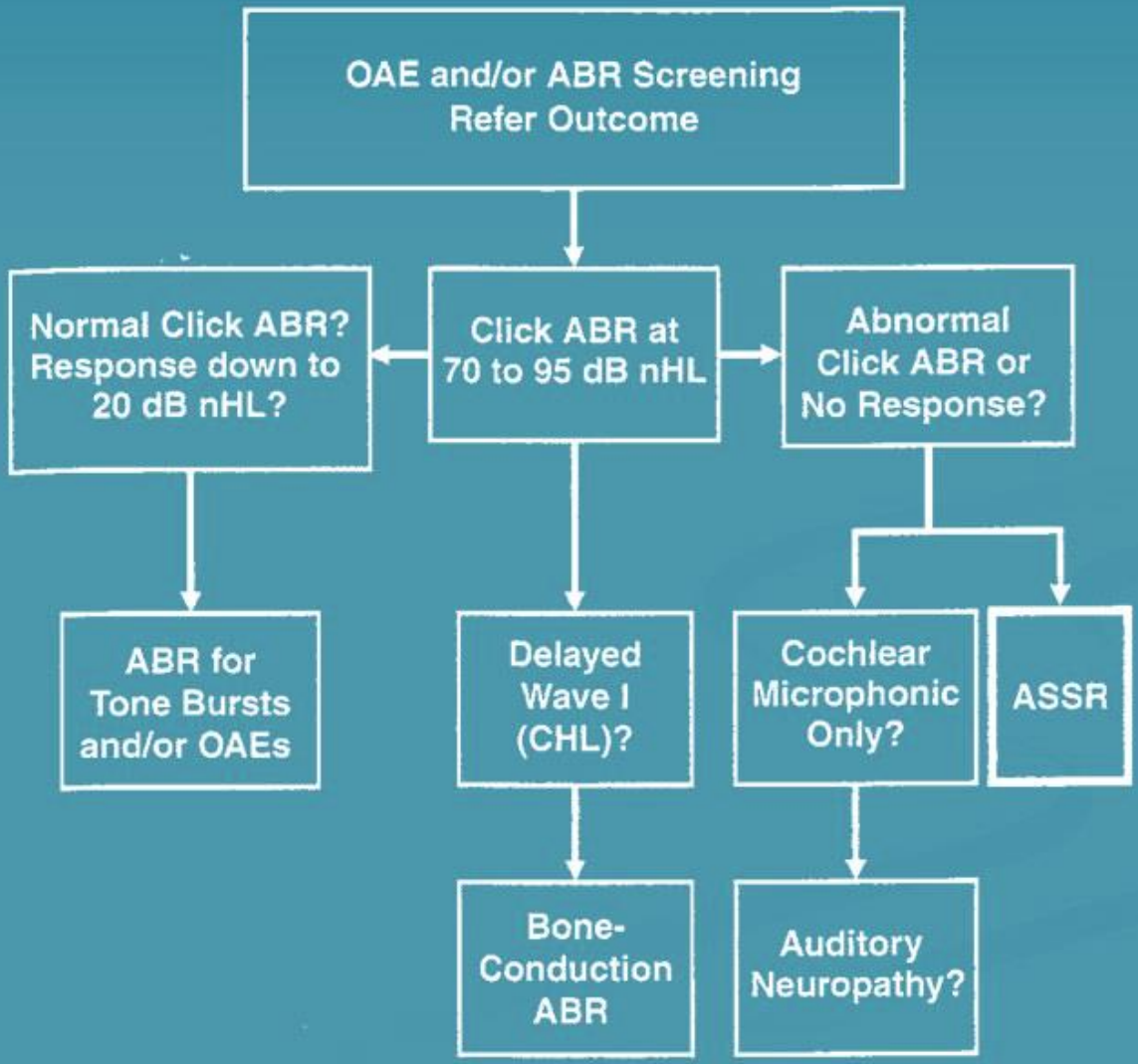
# ‘Best Practice Recommendations for Diagnostic Hearing Testing of Infants’

- ✓ Auditory Brainstem Response (ABR)

  *“Threshold measurement with frequency specific **tone bursts**”*
  *“Threshold measurement with **bone conduction** ABR “*

- ✓ Behavioral Audiometry

# Role of ASSR in Frequency-Specific Estimation of Hearing Thresholds in Infants



# 2004 STATISTICS

| | |
|---|---|
| Total Screened | 97% |
| Passed 1st Screening | 91.21% |
| Passed 2nd Screening | 6.37% |
| Referred for Diagnostic Testing | 1.35% (n=324) |
| Received Diagnostic Testing | 84% |
| Lost to Follow-up | 16% |
| Hearing Loss | 0.14% (n=60) |

# Types of Hearing Loss Identified 2004

| | Bilateral | Unilateral |
|---|---|---|
| Conductive | 9% | 21% |
| Sensorineural | 54% | 37% |
| Undetermined | **36%** | **47%** |

# Early Intervention

- ✓ Birth-to-Three Eligibility

*“40db or greater”*

*“ bilateral hearing loss”*

# Early Intervention

- ✓ Rehabilitation Team:
  - ✓ *Audiologist*
  - ✓ *ENT*
  - ✓ ***Family***
  - ✓ *SLP*
  - ✓ *Psychologist*
  - ✓ *Teacher*

# Some Problems

- ✓ Auditory Neuropathy
- ✓ Mild Hearing loss
- ✓ Unilateral Hearing Loss
- ✓ CAPD