



# How should we describe extent of hearing loss in infants?

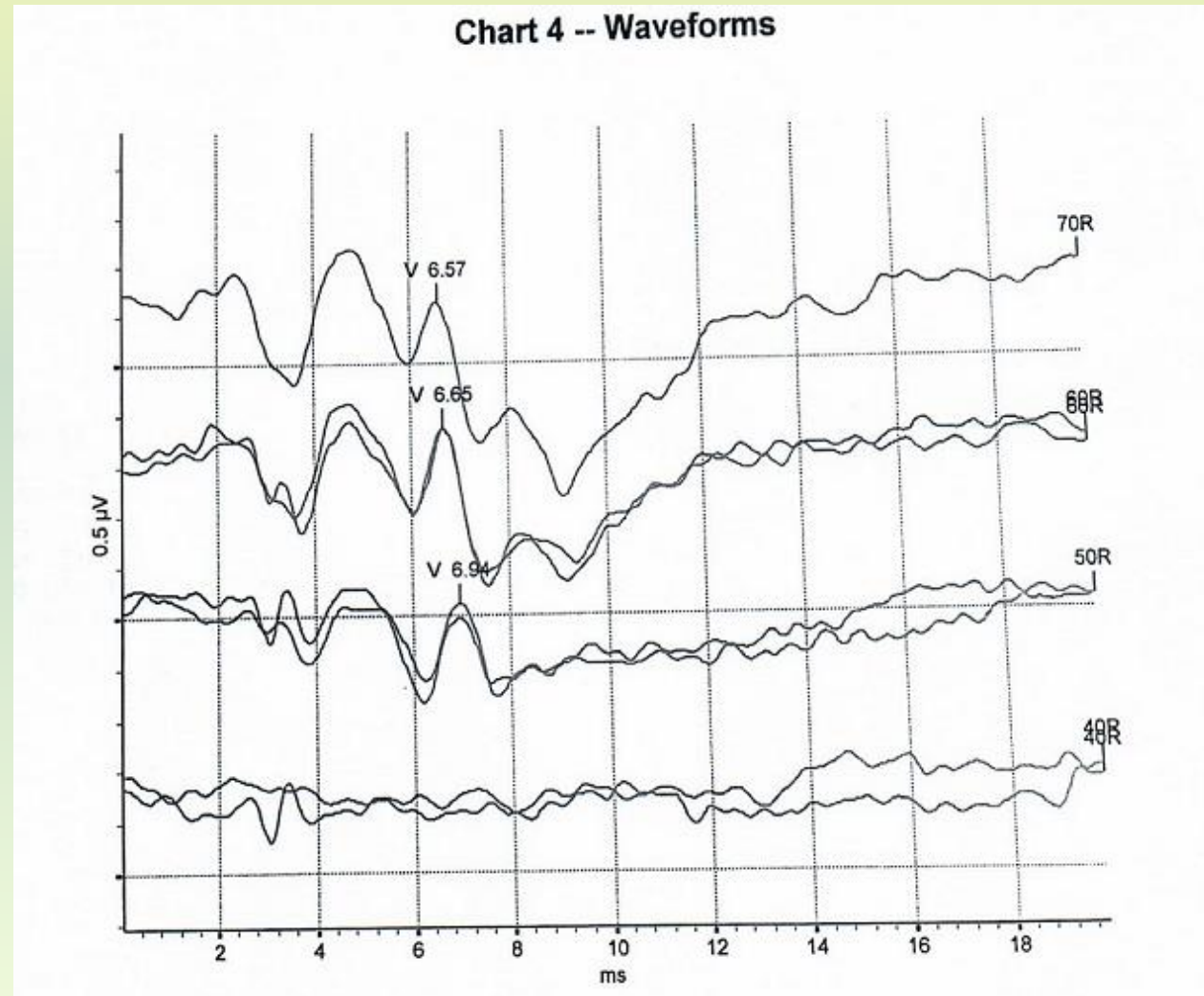
Josephine Marriage PhD

Director of Chear

Clinical Audiologist

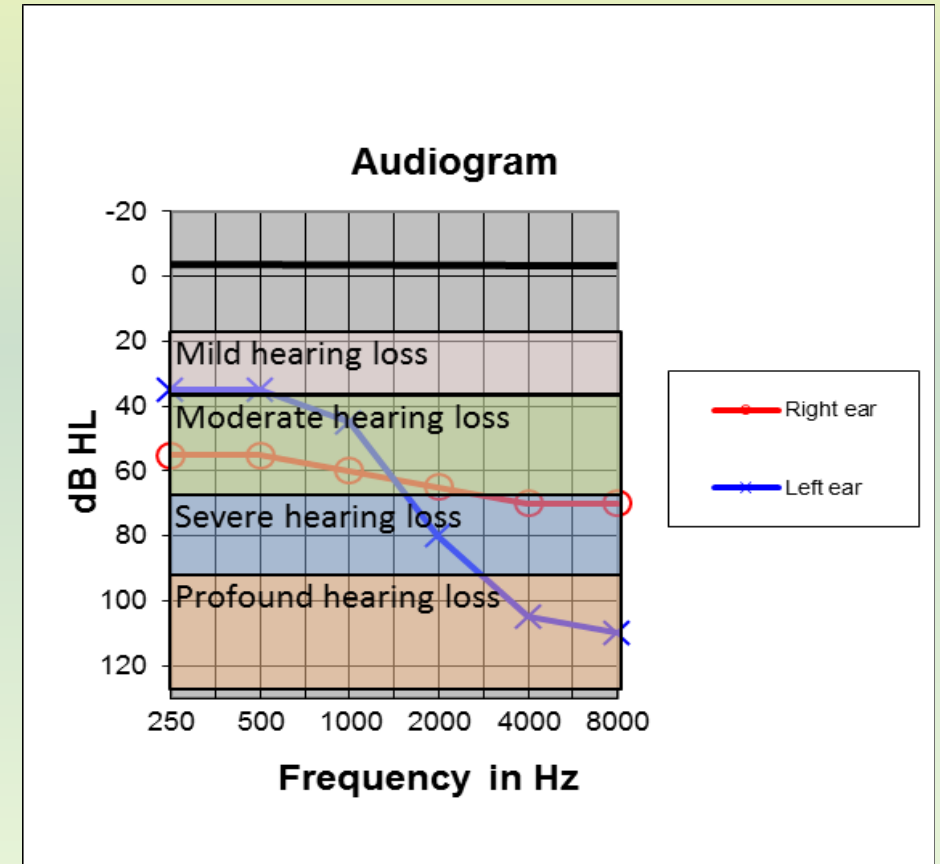


# ABR traces define initial hearing levels at a few weeks of age



# What does this mean to the audiologist?

- Great, I can specify hearing levels across frequencies in each ear
- Hearing aid fitting is straight forward
- Outcomes are likely to be good
- British Society of Audiology categories of hearing loss



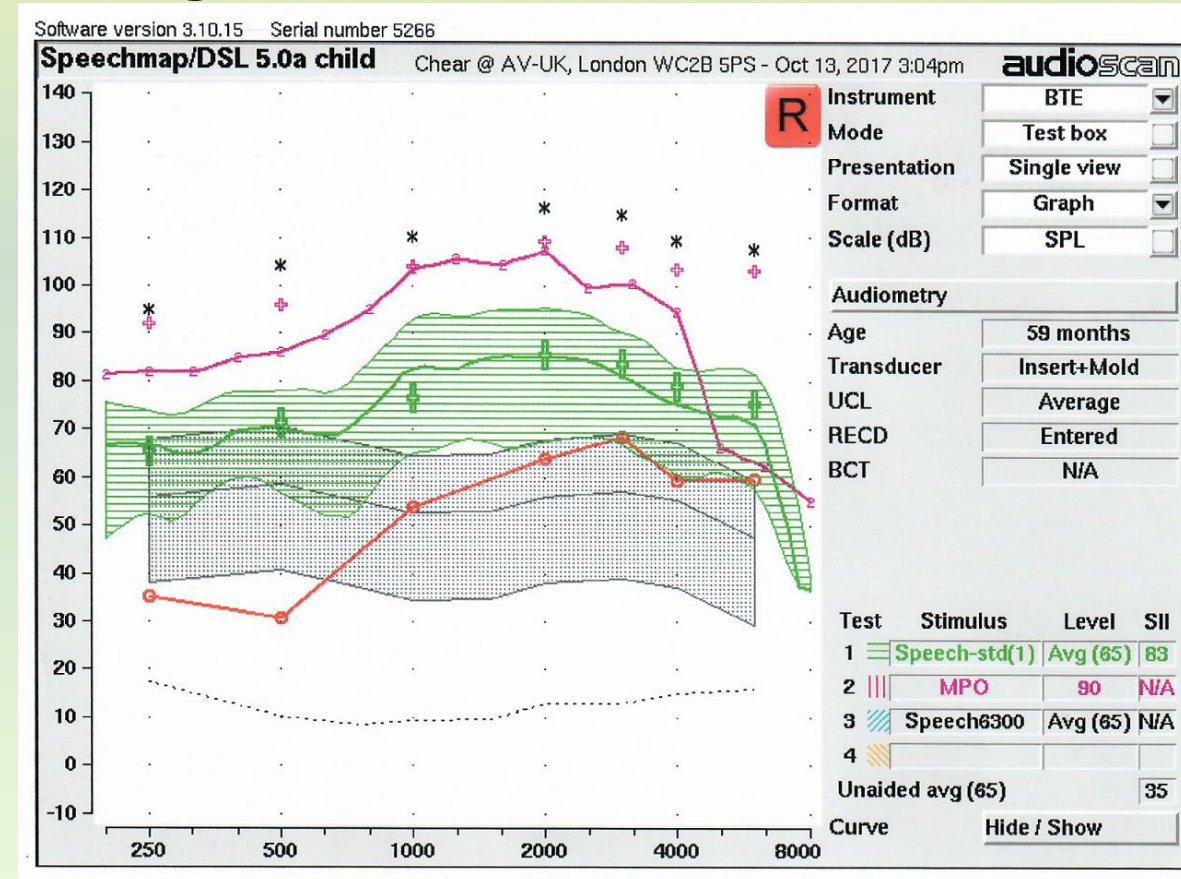
# What does this mean to family?

Explain to parents:

“Your child has moderate level of hearing loss”

Well-fitted hearing aids will give good audibility of speech

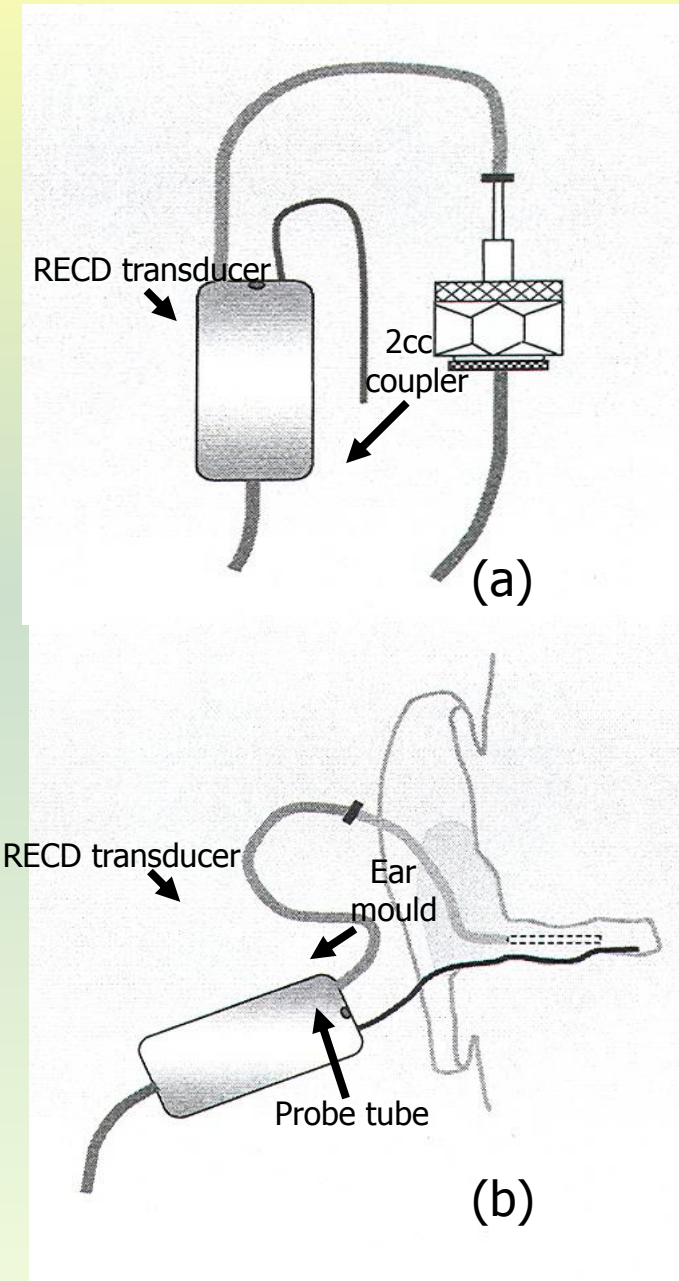
Hearing aid fitting takes account of ear moulds in the baby’s ear



# Real-ear-to coupler-difference (RECD)

- Broad band stimulus presented in 2cc coupler & response recorded (a)
- Mark the probe tube length and insert into EC
- Insert ear mould (b)
- Same broad band stimulus presented through ear mould & response recorded

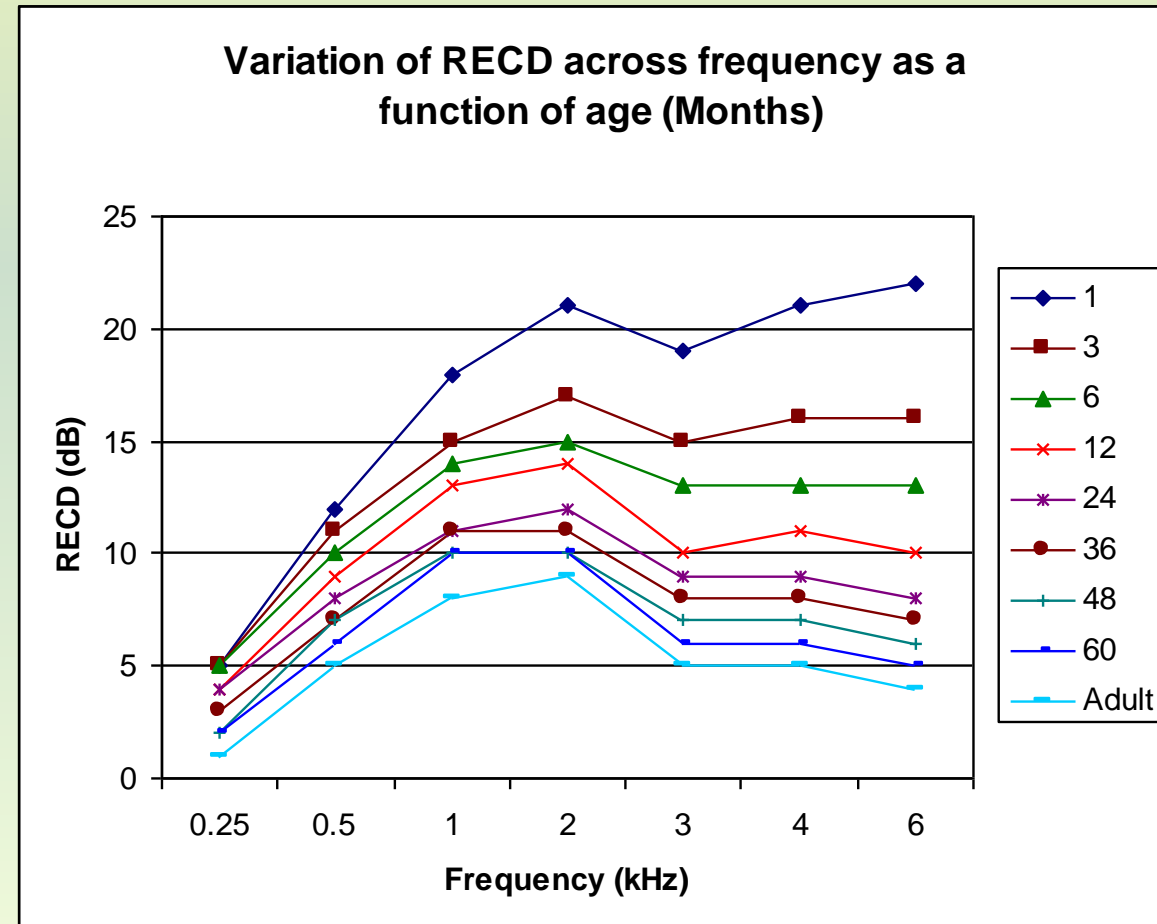
RECD = occluded EC – 2cc coupler response



# Hearing aids are fitted with measurement of the ear mould in ear

- Takes account of the small size of the ear canal
- Very small ear canal needs less amplification for audibility

This can be re-measured with each new ear mould  
(Or approximated for age)



# What happens as baby grows to toddler?

Re assessment of hearing levels using behavioural testing:

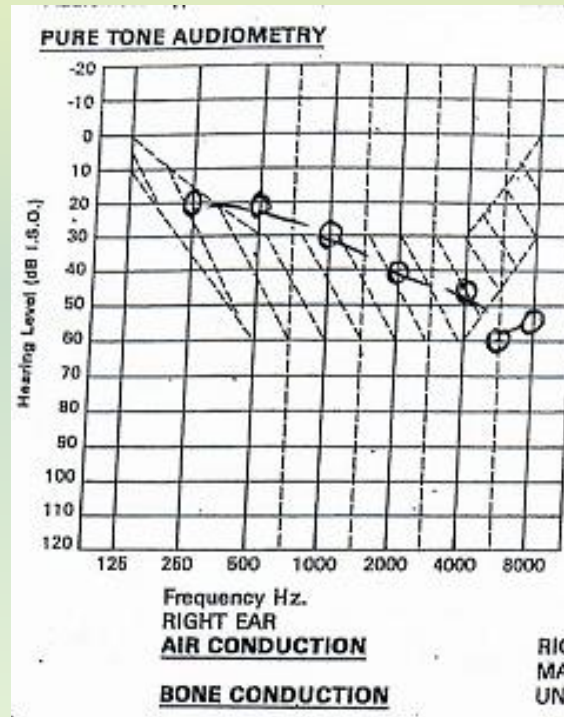
# Hearing levels also change

- Derive an audiogram showing hearing levels

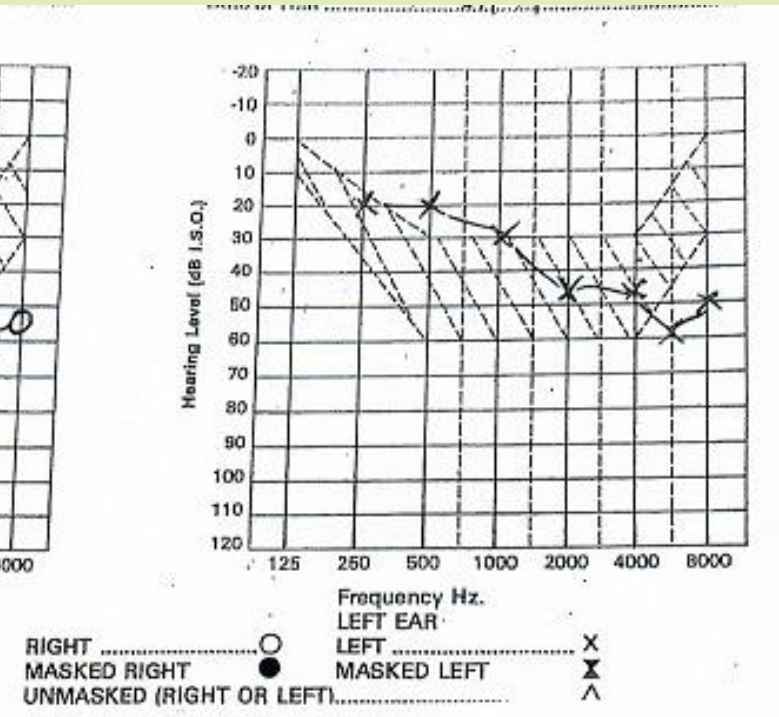


# What change is seen in ABR derived hearing thresholds and Behavioural test thresholds?

Audiogram derived from ABR



Audiogram warble tone VRA with inserts



Simulate the effect on speech audibility with  
this extent of hearing loss

# Research by Kinjal Mehta shows:

Population study of 78 cases picked up by NHSP between 2008-2015

Parents given a choice on age at which hearing aids were fitted in mild to moderate hearing loss

By 3 years of age: ALL cases of mild/moderate hearing loss were fitted with hearing with agreement of parents, due to delayed speech development in all cases.

# Predict change in hearing levels with age

There are changes in detection thresholds due to following factors:

- Change in size of ear canal as baby grows
- Calibration of signals from ABR which is not the same as warble tones
- Correction factors are applied to ABR results based on best information

What information the parents want the early weeks?

Description of extent of hearing loss should take include predicted change in thresholds

