

CHDP AUDIOMETRIC SCREENING AND PLAY AUDIOMETRY



Child Health and Disability Prevention Program
County of Santa Cruz – Public Health

Learning Objectives

- Understand the importance of hearing screening during childhood
- Understand the uses of Play Audiometry
- Describe accurate documentation of audiometric screening results
- Describe and implement the CHDP program guidelines for referral and follow-up
- Demonstrate the steps of conditioning, reconditioning, and screening using Play Audiometry

Importance of Early Screening

○ Rationale

- 1-3/1,000 infants are born w/ hearing impairment
- Early identification & ongoing screening are vital to ensure normal language, cognition, and psychosocial development
- Early hearing detection and intervention (EHDI) maximizes linguistic competence & literacy development

Hearing loss affects the child and the entire family. Failure to identify hearing loss by 3-6 years of age can result in life long developmental deficits. Early discovery of hearing loss is the key to successful treatment.

How does this relate to racial and health equity?

- Low income and minority children have lower rates of privatized health care
- These children face a disproportionate health burden due to systemic racism and institutions
- If early screenings are not done, children that might otherwise not be screened by a Primary Care Provider will be further disadvantaged due to lack of access to care
- This can perpetuate cycles of poverty by hindering learning and education at a young age



What is Health Equity?



“Health equity is achieved when every person has the opportunity to “attain his or her full health potential” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances.” Health inequities are reflected in differences in length of life; quality of life; rates of disease, disability, and death; severity of disease; and access to treatment.”

-- CDC

Health Assessment Guideline #14

The CHDP Health Assessment Guidelines (HAGs) set CHDP provider standards for pediatric health assessments

Find them on the Internet at:

www.dhcs.ca.gov/services/chdp/Pages/HAG.aspx

HAG #14 covers Hearing Screening & Anticipatory Guidance

Health Assessment Guideline #14

Screening Requirements

- Review family & medical history
- Examine ears, head, and neck
- Monitor for auditory skills, middle ear status, and developmental milestones
- Assess auditory responsiveness & speech development
- Administer a validated global developmental screening tool at 9, 18, 24-30 months
- Screen for hearing using a pure tone audiometer beginning at age 3

HEALTH ASSESSMENT GUIDELINE #14

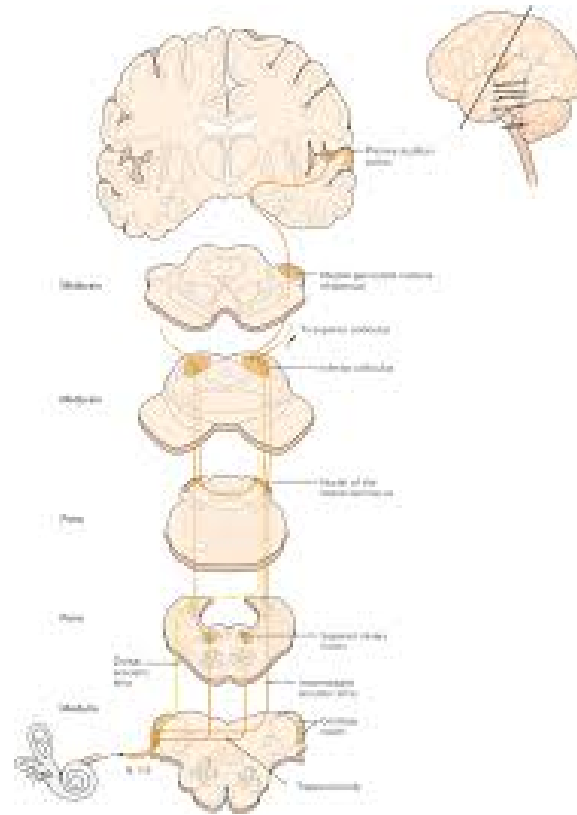
- Referral & Follow-Up
 - Refer children who fail any two screenings at least six weeks apart to California Children Services (CCS, see section 41518 in link:
<https://www.dhcs.ca.gov/services/ccs/Pages/medicaleligibility.aspx>
 - for CCS referrals, ask your health care provider or call the care plan at 1-800-700-3874 x5512
- Personnel Qualifications
 - Complete a training course in Audiometric Screening and Play Audiometry. Receive a certificate from the local CHDP program
 - Administer a hearing screening test within a year of the training course
 - Maintain certification every four years

Anatomy & Physiology

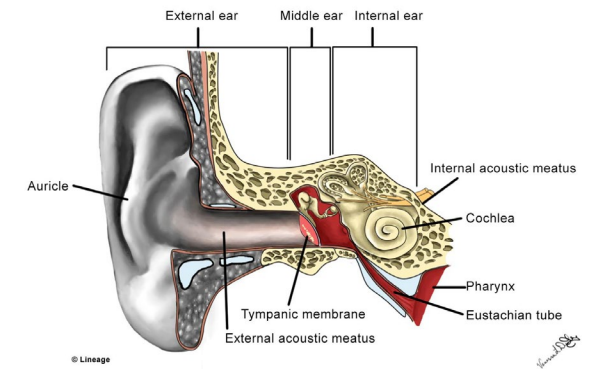
○ Four Major Areas of Auditory System:

- External Ear
- Middle Ear
- Inner Ear
- Auditory Nervous System

Auditory Nervous System

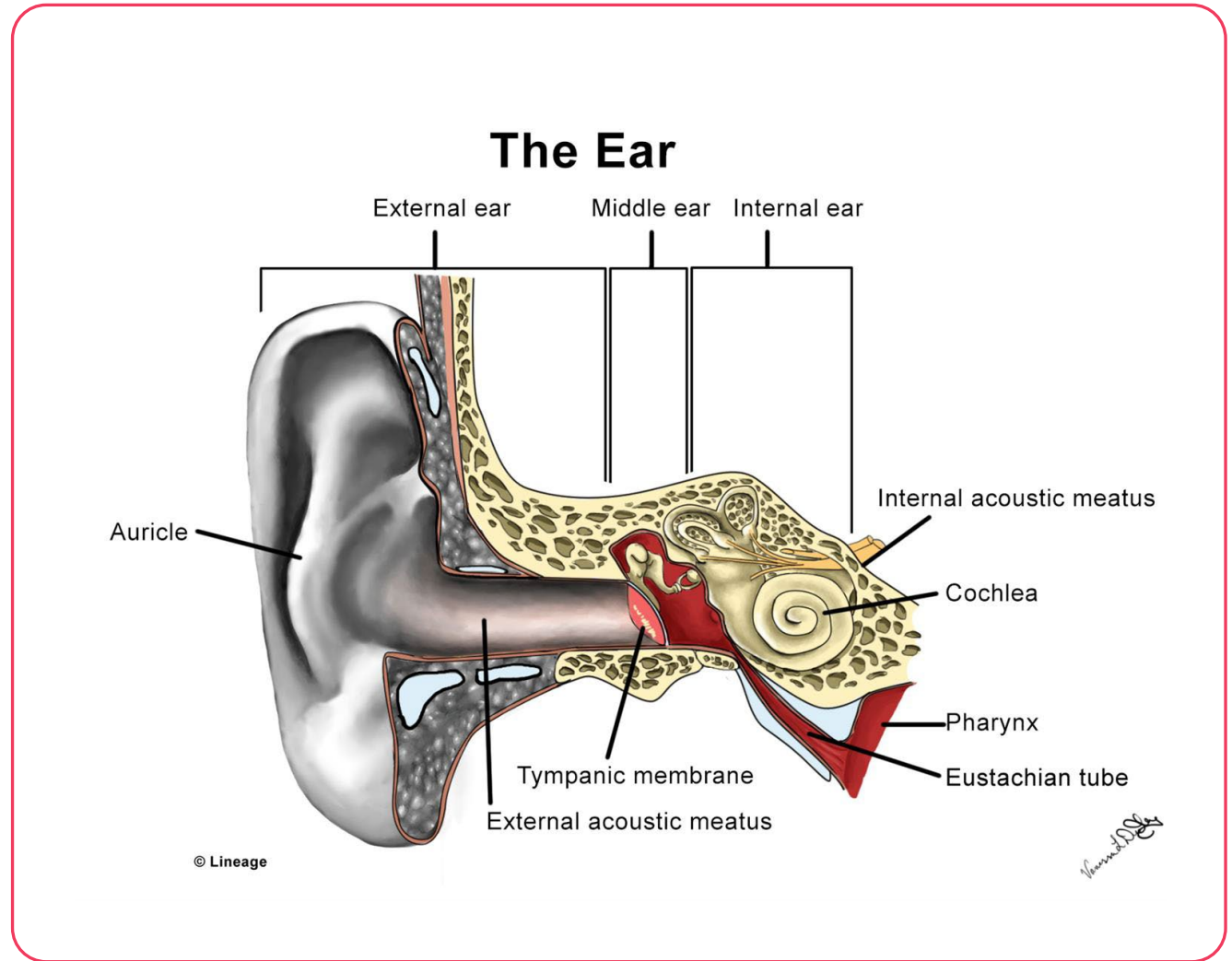


The Ear



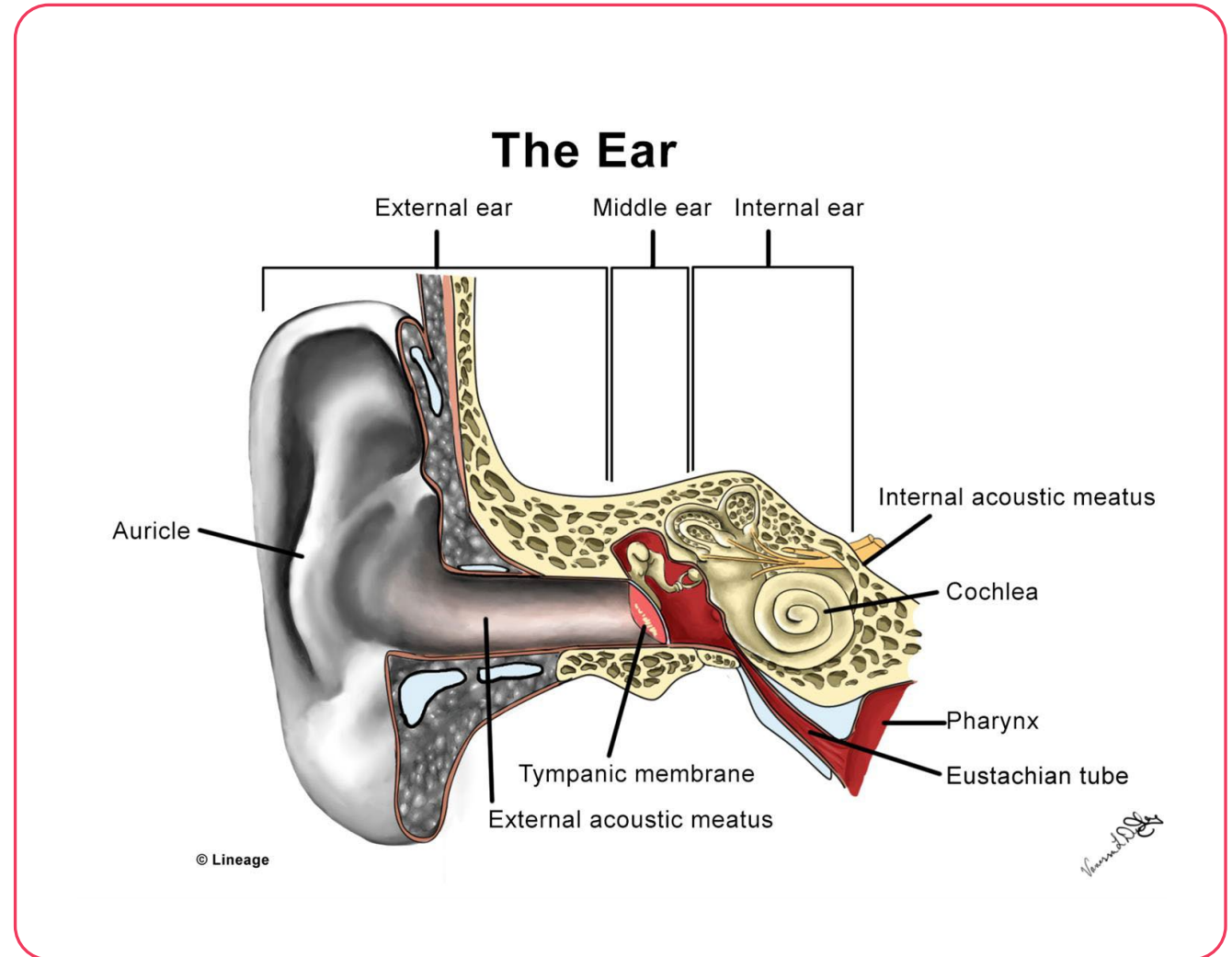
Anatomy & Physiology

- External Ear: consists of auricle and external auditory canal
- **Malformations or obstructions can result in Conductive Hearing Loss**



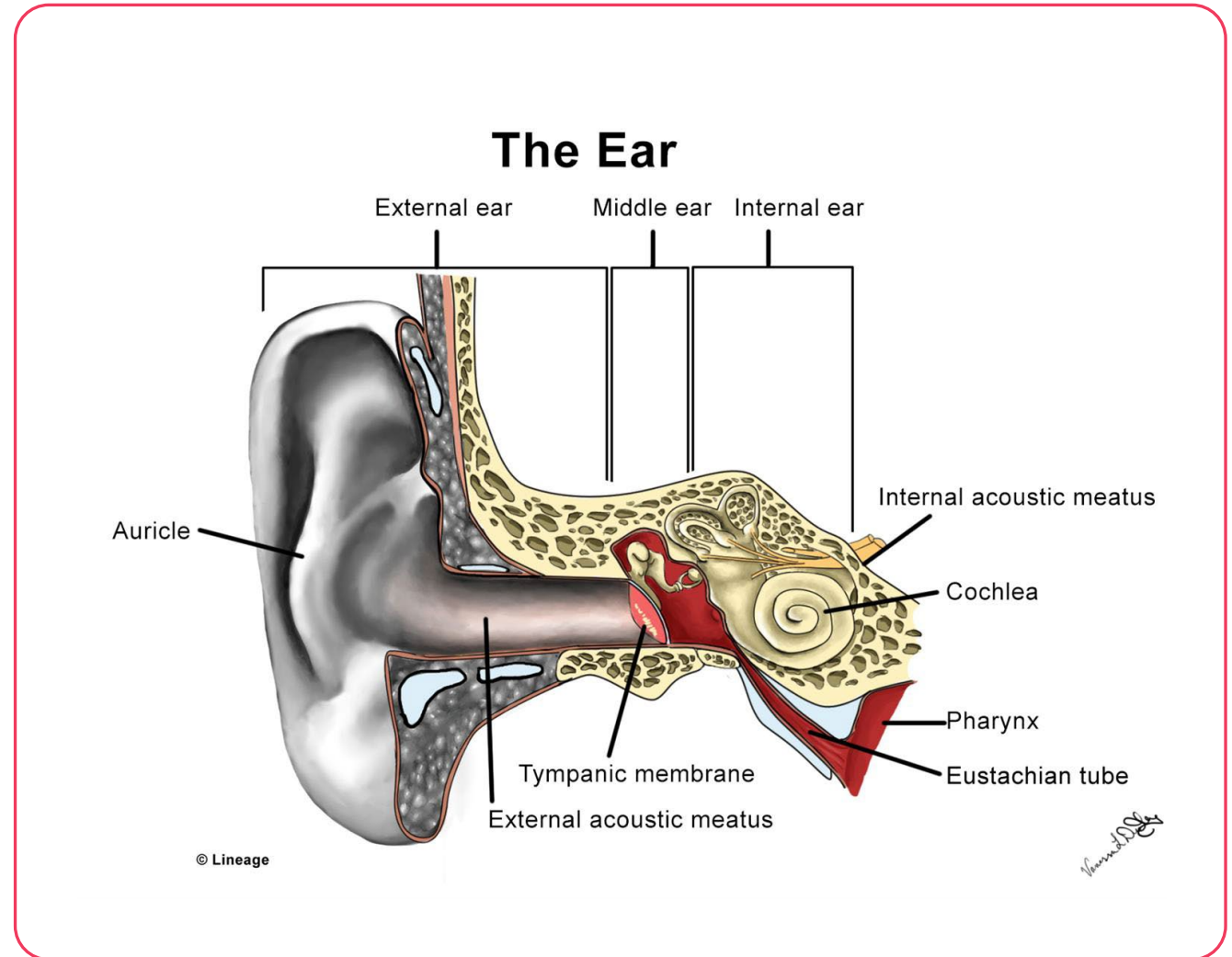
Anatomy & Physiology

- Middle Ear: Extends from tympanic membrane to Oval & Round Windows
- **Inflammation (ear infection), perforation, otosclerosis, or malformation can result in Conductive Hearing Loss**



Anatomy & Physiology

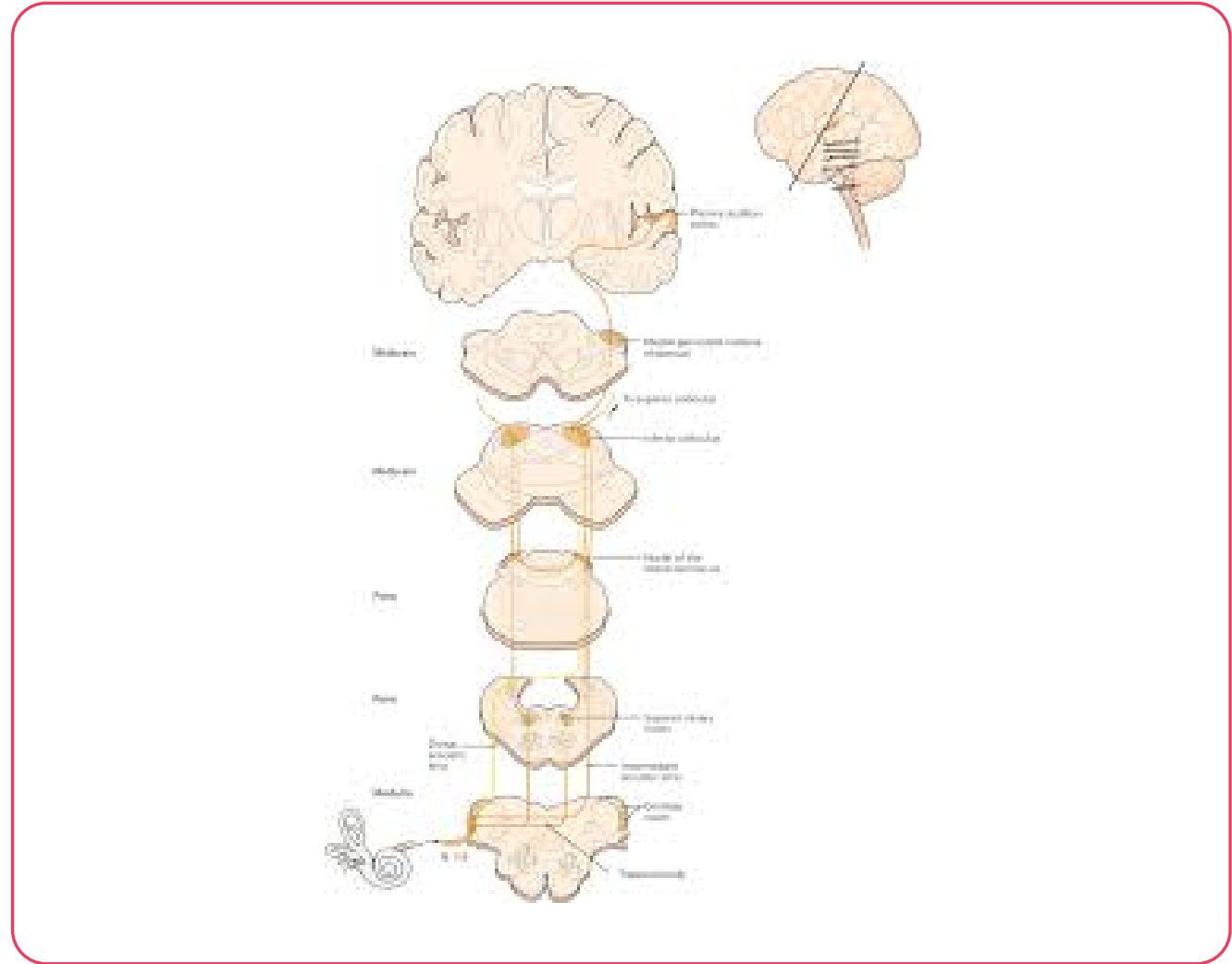
- Inner Ear: composed of organs for balance (semicircular canals) and hearing (cochlea)
- **Malfunctions (congenital or acquired) can result in Sensorineural Hearing Loss**



Auditory Nervous System

Anatomy & Physiology

- Auditory Nervous System: composed of auditory nerve and its pathways to the brain
- **Malfunctions (congenital or acquired) can result in Sensorineural Hearing Loss**



Major Categories of Hearing Disorders

- Conductive Hearing Loss: malfunction of the external and/or middle ear while the inner ear & nerve are normal
 - Level of sound conducted to inner ear is reduced
 - Hearing loss is at low frequencies
 - Understands speech at louder volumes
 - Tolerates loud/noisy environments well
 - May speak softly

Major Categories of Hearing Disorders

B. Sensorineural Hearing Loss: malfunction of inner ear and/or auditory nerve while external & middle ears are normal

- May cause reduction in sound & inability to discriminate speech
- Hearing loss is greater at higher frequencies
- “Can hear, but not understand”
- Less tolerant of loud sounds
- May speak loudly
- May experience ringing or buzzing

Major Categories of Hearing Disorders

- C. **Mixed Hearing Loss**
Combination of a conductive & sensorineural loss in the same ear
- D. **Nonorganic Hearing Loss**
Hearing loss with no known physical basis & thought to result from psychological state
- E. **Central Auditory Processing Disorder/
Auditory communication disorder**; not a dysfunction of the mechanisms of hearing

Audiogram /Audiometer

- Audiogram:
- You make the difference in successful screening!
- Testing frequencies (Hz) are 1000, 2000, 3000, 4000
- Testing intensities (dB) are 20-25
- Remember this is a **screening** for referral to an audiologist as needed
- Raising hand technique is ok for older children/adolescents-ages 6+
- Chart to exception
- CCS referrals scheduled 6 weeks apart



Audiogram /Audiometer

► Audiometer:

- Familiarize yourself with & Maintain the equipment (Calibration)
- Buttons
 1. Power switch/button
 2. Frequency selector (Hz)
 3. Intensity selector (dB)
 4. Ear selector
 5. Stimulus/interrupter switch
 6. Pulse-use
 7. Steady button/ Warble/ frequency modulator - DO NOT USE
 8. Response button
- Earphones/Headsets are not interchangeable



Audiogram /Audiometer

Remember:

- ▶ No physical cues
- ▶ Shield the button
- ▶ Hold for “one Mississippi”
- ▶ Change pattern
- ▶ “No questions” like $\Theta K?$
- ▶ Practice your screening technique with as many kids as possible (or even co-workers)



SCREENING STEPS

Watch Video (11:47-1:24)

<https://youtu.be/Hv9spP6OTuM>

- Testing frequency (Hz) and Intensity (dB) 1000, 2000, 3000, 4000 at 20-25 dB
- Play the game
- Chart to exception
- Pass/refer

“HEARING SCREENING ENVIRONMENT/ PLAY AUDIOMETRY”

A Successful Hearing Screening Environment
Needs:


1. Qualified screener
2. Calibrated audiometer
3. “Biological” calibration (listen to the audiometer tones, look for broken equipment)
4. Conducive environment (quiet and not distracting)

“HEARING SCREENING ENVIRONMENT/ PLAY AUDIOMETRY”

Play Audiometry:

- Use for 3-6 yo
- Use plain blocks & non-noisy baskets
- Requires staff to position kids
- Requires conditioning by staff so children understand what to do
- In a young child, start the screening @ 4000 Hz in right ear



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- You have completed Step One
 - Next Steps
 1. Practicum
 2. After practicum, you will receive a certificate of completion from the CHDP office

CONGRATULATIONS!

CERTIFICATES ARE GOOD FOR FOUR YEARS!