



UNIVERSAL HEARING SCREENING IN A TERTIARY CARE RURAL HOSPITAL IN ANDHRA PRADESH

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ABSTRACT World Health Organization has released a Universal Screening Guidelines for hearing impairment, the report stresses that profound permanent bilateral hearing loss (PBHL) is a critical condition in newborn babies, with a prevalence of 1 to 1.5 per 1000 live births. In addition, to PBHL, the population has the burden of 1 to 2 per 1000 newborns with bilateral mild to moderate hearing loss, or unilateral hearing loss of various degrees. The causes of hearing impairment in the just born include intrauterine infections such as TORCH (Toxoplasma, rubella, cytomegalovirus, herpes) congenital infections, genetic abnormalities and craniofacial abnormalities. Approximately, 50% of neonates with PBHL have no identifiable risk factor.(1,2) Hearing loss in newborns has serious implications in not only language but overall development, education, livelihood and quality of life.(1,2,3) The first six months of life are crucial for the development of speech and language. Each month lag in diagnosis of hearing impairment accounts for a 0.17-month delay in receptive language and a 0.30-month lag in expressive language.(4) **Conclusion:** It has been proved that infants who receive intervention before the age of 6 months have better school outcomes, and improved language and communication skills by 2–5 years.(5)

KEYWORDS :

INTRODUCTION:

Universal Hearing Screening in India is currently in a phase of significant transition. While not yet a mandatory nationwide law like some other health screenings, it is being aggressively pushed through the National Programme for Prevention and Control of Deafness (NPPCD) and the Rastriya Bal Swasthya Karyakram (RBSK). The RBSK, launched in 2013 under the National Health Mission, screens children from birth to 6 years for 4D's (Defects at birth, Diseases, Deficiencies, Developmental delays) including hearing impairment, with free diagnosis and treatment.(6)

The goal is to move from “targeted screening” (only to high risk babies) to Universal Newborn Hearing Screening (UNHS) to ensure every child is screened within the first month of life. But coverage remains limited by infrastructure and resource shortage.

MATERIAL AND METHODS:

Newborn babies who were delivered in our hospital were subjected to Otoacoustic emission (OAE).

Aims And Objectives:

1. To identify hearing loss in newborn babies
2. To achieve hearing screening to all newborn babies so that timely and corrective action can be taken to minimize the disability.

Observation:

The study was conducted in PESIMSR, Kuppam (AP) which is a rural, agrarian predominant livelihood place.

The data collected was from February 2025 – December 2025.

1. Table 1 Showing OAE Within 24hr After Birth.

Sl.no	No. of Patients	Male	Female	Pass	Fail
1	1472	742	730	830	642

From our study we were able to draw an inference that 56.38% of the newborn were pass and 43.61% were referred.

2. Table 2 Showing OAE At 6 Weeks After Birth.

Sl.no	No. of Patients	Male	Female	Pass	Fail
1	976	542	434	953	23

The second table shows that most of the “Fail” cases were of temporary nature and the OAE had recovered.

The causes for absent OAE in newborn babies

o Temporary Causes:

1. Middle ear fluid or infection.
2. Earwax or vernix blocking the ear canal.
3. Noise or movement during the test.

o Permanent Causes:

1. Sensorineural hearing loss (inner ear damage).
2. Auditory Neuropathy (nerve pathway issues).

DISCUSSION:

NPPCD, launched in 2006, promote hearing screening but focuses more on treatment than universal newborn checks (1). RBSK, started in 2013, includes hearing for over 27 crore children, with free interventions under the National Rural Health Mission.(7) Only about 38% of medical colleges conduct UNHS, often using tools like OAE or auditory brainstem response (ABR).

1. Current Framework and Strategy

India follows a “step-ladder” screening protocol designed to be cost-effective and scalable:

Stage 1: OAE : Performed within 48-72hrs of birth or before hospital discharge. It is a quick, non-invasive test that measures sound waves produced in the inner ear.

Stage2: Repeat OAE: If the child “fails” (referred) the first test, a second OAE is usually done at 6 weeks (during the first immunization visit).

Stage 3: BERA/AABR (Brainstem Evoked Response Audiometry): If the child fails the second screening, they are referred for a BERA test by 3 months of age to confirm the type and degree of hearing loss.

2. Implementation Status (2025-2026):

1. Public Sector: Major government medical colleges and district hospitals now have NPPCD units equipped with OAE and BERA machines. Screening is often free in these settings.

2. State – specific Success: States like Kerala and Tamil Nadu have been pioneers, implanting near-universal screening in government hospitals. Other states like Maharashtra and Karnataka are rapidly expanding their reach through public-private partnerships.

Experts advocate a “1-3-6” model: screen before 1 month, diagnose y 3 months, and intervene by 6 months.(7). Integrating UNHS into NPPCD and RBSK with trained health workers could enable nationwide rollout using existing infrastructure.

- 1 Month: Screening completed
- 3 Months: Diagnosis confirmed
- 6 Months: Intervention (hearing aids or cochlear implant surgery) started.

3. Key Challenges

Despite progress, several hurdles remain for achieving 100%

coverage:

- High Home-Birth Rate: While institutional deliveries are rising, babies born at home often miss the initial 48-hour screening window.
- Loss to Follow-up: A significant number of parents do not return for the second screening (at 6 weeks) if the first one was a “refer,” often due to a lack of awareness or distance from the facility.
- Equipment Maintenance: In rural districts, the lack of trained audiologists and frequent equipment breakdown can stall screening programs.
- False Positives: Fluid in a newborn's ear can cause a “fail” in the first 24 hours, leading to unnecessary parental anxiety.
- Low prioritization of hearing impairment, and many programs limited to tertiary hospitals rather than community levels.(8)

4. Government Support And Subsidies

For children diagnosed with profound hearing loss, the Indian government provides significant support:

- ADIP Scheme: The Assistance to Disabled Persons scheme free cochlear implants and surgery for children from low-income families (usually under 5 years of age).
- Newborns in Andhra Pradesh typically receive universal hearing screening as a part of routine hospital protocols at birth, integrated with schemes Dr. NTR Aarogyashri for eligible families.

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