

# Overview of Otoacoustic Emissions (OAE) Hearing Screening



## Need for Periodic Hearing Screening

Permanent hearing loss is the most common birth defect in the United States. Approximately 1 out of every 300 children in the U.S. is born with a significant hearing loss. Most newborns in the U.S. now receive an initial hearing screening before leaving the hospital. As a result, some babies may be referred to a pediatric audiologist and fitted with hearing aids by four weeks of age.

Not all hearing loss can be identified at birth, however. Hearing loss can occur at any time in a child's life. By six years of age, the incidence of permanent hearing loss doubles from 1 in every 300 to 2 in every 300.

The American Academy of Pediatrics recommends periodic hearing screenings between birth and school age because hearing is central to language development, communication, and learning.

## Advantages of OAE Screening

Subjective methods, such as sound makers or sole reliance on parent perceptions of hearing ability, have not proven reliable for screening children birth to three years of age for hearing loss. OAE Screening is the most appropriate method because it:

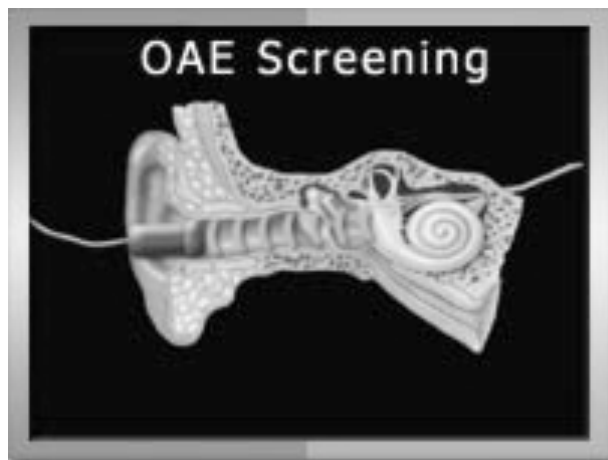
- Is quick, painless and does not require a behavioral response.
- Can help to detect permanent sensorineural hearing loss and call attention to a wide range of hearing-health concerns.
- Can be conducted in a variety of health and education settings by anyone who is trained to use the equipment and is skilled in working with young children.



## The OAE Screening Procedure

The procedure is performed with a portable hand-held screening unit. A small probe, fitted with a sensitive microphone, is placed in the child's ear canal. This probe delivers a low-volume sound stimulus into the ear.

The cochlea responds by producing an otoacoustic emission, sometimes described as an echo, which travels back through the middle ear to the ear canal. The cochlear response is picked up and analyzed by the screening unit.



In approximately 30 seconds, the result is displayed on the screening unit as a “pass” or “refer.” Children not passing the OAE screening are assessed by a health care provider for common outer or middle ear problems. Children who still do not pass an OAE screening after medical clearance are referred to a pediatric audiologist for a complete evaluation.

## The Early Childhood Hearing Outreach (ECHO) Initiative

The ECHO Initiative provides training and technical assistance to help update hearing screening practice with children 0-3 enrolled in Early Head Start, Migrant and Seasonal Head Start and American Indian/Alaska Native Head Start programs. The ECHO Initiative also provides a variety of resources to help other early childhood programs including home visitation and early intervention programs as well as health care providers integrate OAE hearing screening into the critical services they deliver to infants and toddlers.

### Available resources

- Program development planning tools
- Equipment selection guidelines
- Training & Instructional materials (print, video & electronic)
- Screening protocols & forms
- Program quality monitoring and tracking tools