

Minnesota Department of Health

Newborn Hearing Screening Technologies

MEDICAL FACT SHEET

Automated Auditory Brainstem Response (ABR)

When the auditory system is excited by a stimulus, small electrical currents are generated. ABR responses are measured by placing sensors on the baby. Sound is introduced to the baby's ears through small earphones while the baby is in a natural sleep. A computer records the baby's brainwave activity and indicates whether the auditory system is appropriately responding to sound.

Advantages of ABR

- Requires no interpretation by the screener
- ABR results are less affected by middle ear or external ear debris than OAEs
- Results are immediately available
- Easy to administer by nursery staff
- May detect neural or central auditory pathologies

Disadvantages of ABR

- May take longer if baby is in a noisy environment
- ABR may be susceptible to electrical interference
- Infants with very mild hearing loss may pass an ABR screen

What to do if equipment fails

- Have a plan in place for a back-up unit
- Arrange to borrow equipment from nearby facility or refer babies out
- Some manufacturers offer loaner equipment
Contact a sales representative about this possibility
- Check with local audiologists or ENT practices to see if they have equipment you could borrow

Otoacoustic Emissions (OAE)

The cochlea produces sound in response to external stimuli. This internally generated sound is measured during an OAE test. OAEs are measured by placing a small probe in the infant's ear canal and presenting sound through small speakers. There are two types of OAEs commonly used in clinical practice. Transient OAE (TEOAE) emits sound in the speech frequency range. Distortion product OAE (DPOAE) emits sound in specific frequency ranges.

Advantages of OAE

- Results are immediately available
- Easy to administer by nursery staff
- Average screening time is less than ABR

Disadvantages of OAE

- Debris or fluid in the external or middle ear can affect results
- Failure rates are high during first 24 hours after birth
- May take longer if infant is in noisy environment
- Infants with very mild hearing loss or central auditory pathologies may pass an OAE screen

Making referrals

Below is a list of ABR and OAE equipment suppliers for your convenience:

- Bio-Logic: (800) 323-8326
- Madsen: (800) 362-3736
- Natus: (800) 255-3901
- Otodynamics: (800) 659-7776

** Appearance on this list does not constitute endorsement by MDH **