# Best Practice Recommendations for Children with Unilateral Hearing Loss

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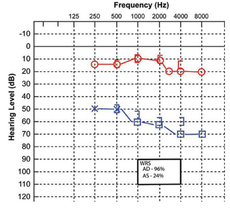
## ABSTRACT

Children with unilateral hearing loss (UHL) historically experience difficulty academically, socially and emotionally when compared to their peers with normal hearing. While in school, children with hearing loss require further outside assistance with education and creating plans for the future. Research in 2001 revealed that of the almost 6 million children in the US receiving services under the IDEA, only 70,767 received services for hearing, although the number of children with hearing loss is much higher. Many of the underserved have unilateral hearing loss. Through a critical review of the current literature, this poster will examine why more children with hearing loss are not being provided the appropriate services and what current audiological recommendations are being implemented for these children. New recommendation criteria for best practice based on these findings will be proposed in hopes of identifying and treating children with unilateral hearing loss more effectively.




## BACKGROUND

Of the 4 million babies born in the US every year, 97.9% of them are now being screened for hearing loss, thanks to the implementation of the Newborn Hearing Screening and Intervention Act in 1999 and state mandates. Between 2 and 3 per 1000 infants are born with a sensorineural or permanent conductive hearing loss, and roughly 5% of children 18 years old and younger present with hearing loss. Although the ability to identify children at the time of birth is a great accomplishment, there are still some children who go undiagnosed. According to research done by Ross and colleagues (2008), the prevalence of unilateral hearing loss in newborns ranges between 0.8-2.7 infants per 1000, but takes a drastic increase once children reach school age, resulting in between 30 and 56 in every 1000 children screened having unilateral loss. Factors contributing to this influx by the time children reach elementary school can be largely attributed to acute and chronic otitis media, non-congenital cytomegalovirus, and late onset hearing loss The dilemma arises when children with late onset hearing loss, progressive losses, or misdiagnosed cases go untreated.

## CONSEQUENCES OF UHL

Both pre and post lingual hearing loss can greatly affect a child's ability to succeed in school, social life and future careers. For those children with UHL, they must overcome the natural consequences of their hearing loss in order to succeed as an adult. These natural consequences include poorer localization, a lack of binaural summation, possible auditory deprivation and greater difficulty with speech understanding, especially in background noise. These factors, when compared with peers with normal hearing, affect a child.

1) Academically
   - Children with UHL were between 20-35% more likely to fail a grade level than peers with normal hearing
   - Further education outside the classroom was required for 12-41% of children with UHL, proving that they had greater difficulty hearing and comprehending information in class compared to other children
   - Correlation between poorer speech understanding and lower verbal academic tests. Children with UHL who failed a grade had lower verbal IQ scores. Those with more profound UHL had significantly lower full-scale IQ scores compared to children with normal or mild UHL.

2) Socially
   - Children who had difficulty localizing and communicating in background noise tended to feel embarrassed and socially excluded by peers. They were also often labeled as "slow, unintelligent, distracted, aggressive, or misbehaved"

3) Emotionally
   - Self-esteem, stress, and exhaustion occupy their minds and can lead to outbursts of anger or misbehavior. Children with UHL may even have poorer communication with family members than children with normal hearing or mild bilateral hearing loss, and 20-42% were reported to have excessive behavior issues

Given this, professionals cannot provide treatment or services strictly for audiologic purposes, but must consider a child's academic, social and emotional needs in order to provide every opportunity for them to succeed in their future endeavors.

## CURRENT PRACTICES AND DIFFICULTIES

Despite universal newborn hearing screening , children with UHL can sometimes be misdiagnosed or not screened or not treated appropriately. Difficulties with current preactices are below.

- All 50 states in the US currently have EHDI programs in place; however, only 43 states mandate a UNBHS
- Children may pass newborn hearing screenings, but later acquired hearing loss due to viral or bacterial infections, syndromic losses, and traumatic head injuries
- Sensitivity of current testing; UHL that are more mild or moderate in degree may not be detected at birth, or if the hearing loss is late-onset. In this case, JCIH recommends children continue to have follow-up during routine doctor's visits to monitor any changes in hearing sensitivity.
- Amplification for UHL may not be not considered "medically necessary" as standards for insurance have become more difficult to maneuver
- Even for a young child who does not have hearing loss, competing noise at a moderate level will cause greater difficulty in speech perception when compared to children 13 years old and above
- Physicians do not understand the developmental consequences of UHL and may minimize the need for follow-up when advising families
- The average age a unilateral loss was identified was not until 4.7 years old, most of which were identified in a preschool or elementary school screening. Fewer than half of the kids had tried amplification or assistive devices as treatment.

## RECOMMENDATIONS

- Standardize definitions of UHL
- Provide services to at-risk families to prevent loss to follow-up after a unilateral referral on newborn hearing screening
- Provide physicians and nurses with in-depth education regarding developmental consequences of UHL, how to perform screening procedures and accurately inform parents of test results
- Hearing screenings conducted with every annual wellness check from birth until the child enters elementary school
- Advocate for changes in legislation and insurance criteria to acknowledge UHL as a detrimental condition if left untreated, resulting in better availability of consistent funds for amplification

## CONCLUSION

While current practices have become drastically more effective in the past 10 years, it will always be our goal as audiologists to better serve children with each passing year. As we strive to educate parents and children about hearing loss, we must also continue to educate our country's leaders. Advocating for state legislation changes to make treatment more available and accessible is our greatest tool. By refining best practice recommendations for treating children with unilateral hearing loss, we are constantly improving the lives of these children, one step at a time.

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