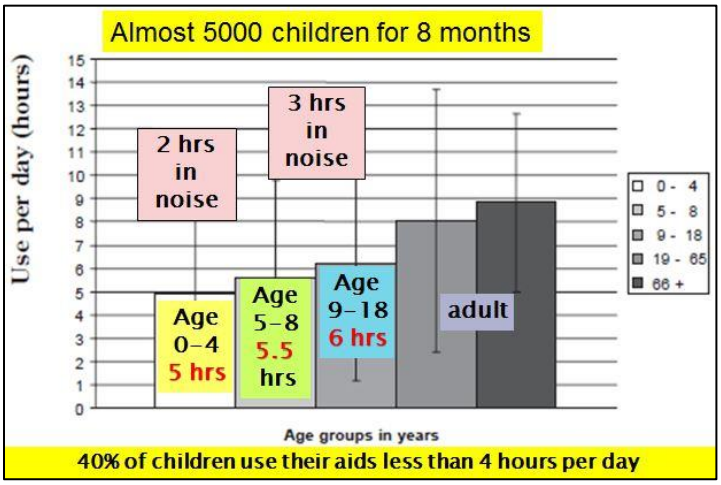
# If We Could Improve Just ONE Thing

## Getting the Most Out of Early Hearing Loss Identification

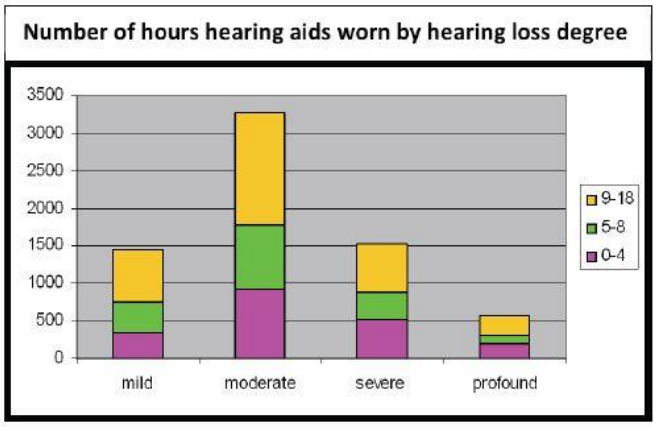
Early Hearing Detection and Intervention (EHDI) is a fabulously successful health improvement initiative with 98%[1] of newborns in the US now being screened for hearing loss shortly after birth. Accomplishing truly universal hearing screening seemed very daunting in the 1990s but was accomplished in about a decade. The reality has now sunk in however, that hearing screening was the easy part.

The value of universal newborn hearing screening lies in the assumption that the developmental delays secondary to hearing loss will be prevented, or significantly minimized, for the children identified. Although we have seen this happen with many children whose parents have been involved in early intervention, a significant issue remains – lack of consistent hearing aid wear.

Eye-opening research in 2010[2] reported that only 10% of children wear their hearing aids all waking hours (Figure 1). This data was obtained on almost 5000 children from infancy through 18 years via the data logging capabilities of their hearing aids over an 8 month period. It is well recognized that amplification is the single most effective habilitation treatment we can provide to truly reduce the developmental effects of hearing loss. Growing the auditory brain of young infants via consistent use of amplification is the first step in an effective early intervention program for the 93%[3] of families who have chosen listening and spoken language as their child's mode of communication. Therefore it is very disturbing that infants in the first year of life, on average, wear their hearing aids only 5 hours a day. The exposure to language and opportunities for auditory brain growth that could have been realized due to early identification of hearing loss are drastically reduced by this reality.




More disappointing is the result that the pattern of inconsistent hearing aid wear changes based on degree of hearing loss (Figure 2). Two assumptions can be drawn from the figure above. First, when families "see their child hear," as in the case of a mild hearing loss, that they are less likely to use hearing aids consistently. This results in a child who tries to "pass" as typical hearing, frequently resulting in unnecessary gaps in educational performance. Second, families of children with severe to profound hearing loss who do not experience the desired benefit from hearing aids, meaning typically successful communication exchanges, also are less stringent about consistent hearing aid wear.




So, if we could improve just one thing to attain better outcomes secondary to early identified

hearing loss it would be to provide families with the support they need to accomplish full-time hearing aid wear for their children. In 2012[4], a survey inquiring about strategies to keep hearing aids on young children was completed by 286 parents and 101 pediatric audiologists. There were two strong findings: 1) families are overwhelmed and really do not understand the impact of hearing loss at the time that they are being told their child needs amplification and 2) audiologists typically lack information on what strategies and hearing aid retention accessories are truly effective in order to provide families with the support needed for them to deal with infants and toddlers who take off their hearing aids.

Because parents have very little experience watching their newborns respond to sound in their environment and 19 of 20 babies with hearing loss come from families without the trait of early hearing loss it is typical for families attending the diagnostic hearing evaluation to see it as perfunctory, without expectation for a negative finding. Once the hearing loss is diagnosed, the news engages the flight or fight response within the amygdala of the brain and it is not possible for the parents to process information. Therefore it is suggested that a 'sound bite' be used by the audiologist prior to conducting the evaluation:

**6 Points to Include in the Soundbite**

a) Screening hearing in newborns is so important that it now happens to almost every baby in the US.
b) It is important to screen hearing early because of brain development –connections are being created NOW for babies brains to make sense of sound.
c) Babies need to hear words clearly to learn to understand words and use words on time (1 yr).
d) It takes 20,000 hours of listening before a young child's brain is ready to learn to read (5-6 yrs).
e) Even a small amount of hearing loss will impact brain development and when a child starts to talk or readiness to learn to read.
f) We need to find hearing loss early so learning problems can be prevented as much as possible

**Example:** "We screen every baby in the country as newborns because it is so important to identify hearing loss early, when the brain is developing. Babies need to hear words clearly to learn to understand and use words on time, at around a year old. It takes 20,000 hours of listening before a young child's brain is ready to learn to read at about age 5-6. Even a small amount of hearing loss will impact brain development. This means that unless the hearing loss is found and addressed, a child will not say his first word on time and won't be ready to learn to read when he starts school. If your child has a hearing loss then we need to find it now so these learning problems can be prevented as much as possible."

Before the diagnosis of the hearing loss, this information is more likely to be processed. Hearing loss is invisible. Most people think of English class, Language Arts, or learning a foreign language when we talk about *Language*. Therefore the points in this sound bite approach aim to make the developmental effects of hearing loss clear to families by mentioning issues that are important to them: the child saying their first word shortly after age one and learning to read in kindergarten/first grade. Once the diagnosis has been made, the audiologist can answer parent questions by returning to the developmental effects of a hearing loss that has not been addressed appropriately.

Even if the parents have grasped the importance of consistent use of amplification as a prerequisite to a typical rate of language learning, it is still no easy task to accomplish. Babies take of

their hearing aids at different ages for different reasons. To be most successful, the parent's response needs to take into account the reason why the hearing aids were removed and pair it with a strategy/accessory that will have a high likelihood of being successful at the child's particular age. Clearly, it is less than helpful for parents to continually hear, "Just keep putting the hearing aids back on" from the audiologist without real strategies to help overcome hearing aid wear issues.

Results of the 2012 survey provided information about strategies families found helpful at different ages. In addition, the survey requested the parents and audiologists to rate the safety, durability, effectiveness and ease of use of different hearing aid retention accessories. The results indicated clearly that audiologists are generally unaware of what is really safe or effective. The top five rated accessories/strategies are in Figure 3.

**Parent Ratings of Hearing Aid Retention Accessories/Strategies**

Based on the results of the Children's Hearing Aid Retention Survey (Anderson & Madell, 2012).

| Retention Accessory | Effectiveness | Child Safety | Durability | Ease of Use | Keeps aids on & working | Average of all areas |
|---|---|---|---|---|---|---|
| Ear Gear | 1 | 2 | 1 | 2 | 1 | 1 |
| Cap | 3 | 1 | 2 | 1 | 2 | 2 |
| Safe-N-Sound | 2 | 1 | 3 | 2 | 2 | 3 |
| Wig / Toupee Tape | 2 | 3 | 9 | 4 | 4 | 4 |
| Oto / Critter Clips | 5 | 7 | 7 | 6 | 5 | 5 |

8 Retention Accessories were rated in a survey completed by 286 parents.

Based on the information from the 2012 survey, three brochures were developed for audiologists and early intervention providers to give to parents of young children with hearing loss to support consistent hearing aid wear. The strategies presented in the three brochures are specific to specific developmental reasons why children remove their hearing aids: Babies - 0-12 months, Toddlers - 12-24 months, Preschoolers - 2-5 years. These brochures were designed to be printed double-sided on a standard office inkjet printer or other printing source. They are available for free download at http://successforkidswithhearingloss.com/hearing-aids-on . In addition, Oticon Pediatrics[5] has combined the text of the three brochures into one brochure that they will be making available through the product brochures available for order on their website (free of charge). Refer to website to see the content of the brochure below.

If we can successfully support families in their understanding of the importance of consistent hearing aid wear and provide them with strategies to do so, we will come ever closer to realizing the promise of near-typical language outcomes for children with early identified hearing loss.


References


1. Newborn hearing screening data: http://www.cdc.gov/ncbddd/hearingloss/2011-data/2011_ehdi_hsfs_summary_a.pdf
2. Hours of hearing aid wear: http://www.phonakpro.com/content/dam/phonak/gc_hq/b2b/en/events/2010/Proceedings/Pho_Chap_12_Jones_Final.pdf
3. Personal communication: North Carolina Beginnings program; Joni Alberg 1/22/14.
4. Survey information and results: http://successforkidswithhearingloss.com/hearing-aids-on
5. Source of Oticon brochures: http://www.oticon.com/professionals/paediatrics/publications-and-downloads/product-brochures.aspx



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