

If We Could Improve Just ONE Thing

Getting the Most Out of Early Hearing Loss Identification

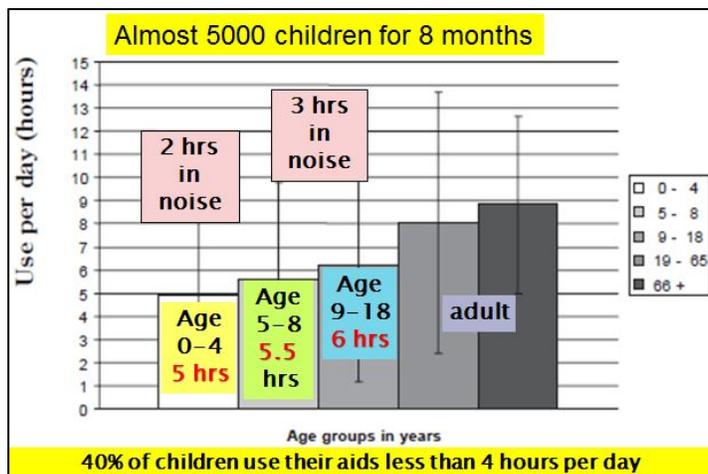
By

Karen Anderson

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 2010² reported that only 10% of children wear their hearing

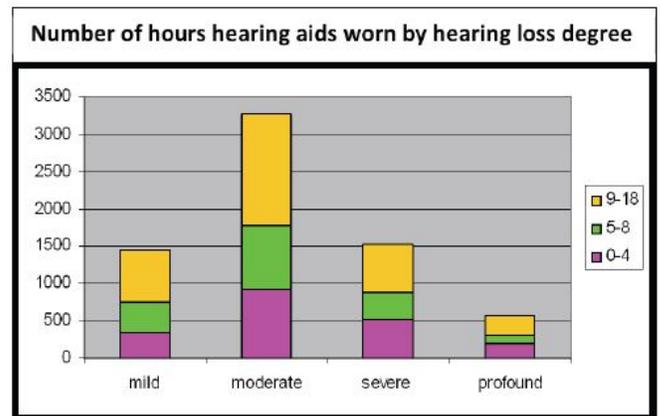


aids all waking hours (Figure 1). This data was obtained on almost 5000 children from infancy through 18 years via the data logging capabilities of their hearing aids over an 8 month period. It is well recognized that amplification is the single most effective habilitation treatment we

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 2012⁴, 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.

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."

- f) We need to find hearing loss early so 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 off 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 Pediatrics⁵ has combined the text of the three brochures into one brochure

Toddlers: 12-24 months.

Meeting the Challenge
Keeping Hearing Devices on Young Children

12-18 months During the second year, the exploring toddler learns to do many things independent of his parents ("Me do").

- They seem like your child is getting into everything. It starts usually for babies to get through a locking of the hearing aid caps. Your baby may be going through a stage where he is learning to control his environment and testing the water's heating edge.
- It is an especially important time to consider what the baby is getting out of taking off the hearing aids. Is he learning how to be in charge to get your attention by trying to get you to do the fun thing you did for him to look out his hearing aid?
- Whatever you choose to do in response to his taking off the hearing aid, be calm and try to control your child's response so that it doesn't draw your attention to him to avoid the hearing aids with your anger. He may make him want to wear them.
- Temperament plays a big role throughout toddlerhood. Children who are more laid back, have regular schedules and can be soothed from misbehavior are easier to train for hearing aid wear as compared to children who are active, sensitive to change, easily upset, and who have habits upon which he is dependent. Wearing aids is non-negotiable.

About 20 months many children are learning the skill of undressing.

- The child is not willing to remove the hearing aids because he does not want to lose them. It's practicing the skill of removing something on his body. His desire to take them out and put them on.
- One he can complete learning to dress to the best of his ability, your baby is not the best of his ability to take them out of his hearing aids. He is learning to be in charge of his own body. He is learning to be in charge of his own body. He is learning to be in charge of his own body.
- Your child can't learn words he doesn't hear. Regularly wearing children have no chance to learn to hear. It's not just the hearing aids that are in the way. It's the hearing aids that are in the way. It's the hearing aids that are in the way.
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WHY DO WE NEED HEARING AIDS?

Children learn almost everything by hearing. Without using hearing aids all day, every day, your child's learning will likely be significantly delayed for the time they start kindergarten. They might never catch up!

- The part of the brain that makes sense of sound needs to be developed before hearing can be used to learn. The part of the brain that makes sense of sound needs to be developed before hearing can be used to learn. The part of the brain that makes sense of sound needs to be developed before hearing can be used to learn.
- Early speech of the brain in the first year of life cannot be made up later. To develop the auditory part of the brain, a child must hear his or her first words by 18 months.
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WHEN DO WE NEED HEARING AIDS?

To be able to start school like other children, your child needs to wear hearing aids every waking hour from infancy. A child needs to wear hearing aids all day every day to develop speech, language and social skills like other children his or her age.

- Children who have used hearing aids all day every day may have been able to learn the 20,000 words needed to be ready to learn to read at the later end of other children his or her age.
- Even children with mild hearing loss may talk and understand more if they wear their hearing aids every waking hour.
- The important time for brain growth may be the time when the hearing aids are not on. The important time for brain growth may be the time when the hearing aids are not on. The important time for brain growth may be the time when the hearing aids are not on.
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Non-negotiable: For persistent toddlers most learn that wearing hearing aids is non-negotiable.

- Only one response that he is a parent's, our selection, between hearing aids. A child needs to wear hearing aids all day every day to develop speech, language and social skills like other children his or her age.
- Children who have used hearing aids all day every day may have been able to learn the 20,000 words needed to be ready to learn to read at the later end of other children his or her age.
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Temporarily place a big smile throughout toddlerhood. Children who are more laid back, have regular schedules and can be soothed from misbehavior are easier to train for hearing aid wear as compared to children who are active, sensitive to change, easily upset, and who have habits upon which he is dependent. Wearing aids is non-negotiable.

Children's Hearing Aid Retention Project
Karen L. Anderson PhD & Jane R. Madell PhD
© 2013. For more strategies and information go to <http://successforkidswithhearingloss.com/hearing-aids-on> or www.facebook.com/hearing-aids-on

Our sincere thanks to those who donated funds for printing this brochure

Did you know?
Children learn almost everything by hearing. Without using hearing aids all day, every day, your child's learning will likely be significantly delayed for the time they start kindergarten. They might never catch up!

Hearing Device Retention Accessory Information

Hearing aid retention accessories not included below were rated as less effective. More information on survey results can be found at <http://successforkidswithhearingloss.com/hearing-aids-on>. Ratings based on the results of the Children's Hearing Aid Retention Survey completed by 286 parents (Anderson & Madell, 2012).

Ear Gear	Caps	Safe-N-Sound	Wig / Toupee Tape	Oto / Critter Clips
Pros: Shows off your hearing device. Not visible. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.	Pros: Easy to install. One size fits all. Hearing aid and hearing aid compatible. Hearing aid and hearing aid compatible. Hearing aid and hearing aid compatible.	Pros: Easy to install. One size fits all. Hearing aid and hearing aid compatible. Hearing aid and hearing aid compatible. Hearing aid and hearing aid compatible.	Pros: Good short-term strategy. Significantly more than 1/2 of the hearing aid retention accessories are available with Oto-Critter Clips. Significantly more than 1/2 of the hearing aid retention accessories are available with Oto-Critter Clips.	Pros: Breaks easily and is not very durable. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.
Cons: Shows off your hearing device. Not visible. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.	Cons: Shows off your hearing device. Not visible. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.	Cons: Shows off your hearing device. Not visible. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.	Cons: Shows off your hearing device. Not visible. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.	Cons: Shows off your hearing device. Not visible. Can be used with any hearing device. Can be used with any hearing device. Can be used with any hearing device.
#1 Rated	#2 Rated	#3 Rated	#4 Rated	#5 Rated

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>

Karen L. Anderson, PhD is Director of Supporting Success for Children with Hearing Loss, an online resource for parents and professionals. Co-author of the 2012 hearing aid retention survey with Jane Madell, PhD, Dr. Anderson has been a pediatric audiologist, educational audiologist and worked at a state-level EHDI program. She is an internationally renowned speaker and author of many well-known checklists (SIFTERs, LIFE, ELF, CHILD) and publications supporting the education of children with hearing loss. Reach Dr. Anderson at Karen@successforkidswithhearingloss.com.
<http://successforkidswithhearingloss.com>

