THE DEVELOPING CHILD WITH UNILATERAL HEARING LOSS

Pediatric Audiologists, Early Intervention Teachers of the Deaf/Hard of Hearing or Speech Language Pathologists

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This step-by-step guide accompanies PowerPoint materials that have been developed to share with families after unilateral hearing loss has been diagnosed, typically in infancy secondary to identification through newborn hearing screening. The PowerPoint presentation can be downloaded from: http://www.kandersonaudconsulting.com/Unilateral_Hearing_Loss.html

This guide will review background information regarding what is known about the affects of hearing loss in one ear on child development and provide information to share with families. The guide is divided into suggested sections to correspond with pediatric audiology appointments and with home visits by an early interventionist (teacher of the deaf/hard of hearing or speech language pathologist).

The user is encouraged to utilize the materials as a resource for families to answer their questions and provide information and support as appropriate to their readiness.

The guide will have "What do you think?" opportunities to help the practitioner reflect on their current practices and how this new information could be integrated into their daily work.

Table of Contents

SECTION 1 – BACKGROUND FOR THE USER

How many children are being identified with unilateral hearing loss?

According to EHDI data from the Centers for Disease Control, in 2007, over 94% of more than 4 million newborns in the US had their hearing screened. Based on 2006 CDC EHDI data, 22.5% of children identified with hearing loss had unilateral loss of either a conductive or sensorineural nature. The prevalence of unilateral hearing loss appears to be 0.8/1000 to 1/1000 screened (Vohr, Simon, McDermot, Kurtzer-White, Johnson, Topol, (2002); Dalzell, Orlando, MacDonald, Berg, Bradley, Cacace, Campbell, DeCristofaro, Gravel, Greenberg, Gross, Pinheiro, Regan, Spivak, Stevens, Prieve (2000). In actuality this translates into something like **20%-30%** of all infants diagnosed with hearing loss experiencing it in one ear only (Italy, Colorado, Vohr RI). Depending on the criteria used to define hearing loss, by early school age the prevalence of unilateral loss rises to at least 2/1000 children (Matkin) and may be as many as 30 – 56 /1000 (Bess, Niskar). Not all of these children will experience adverse educational affects as evidenced by Colorado's incidence of students with unilateral hearing loss receiving specialized services or accommodations at 1.5/1000 (Colorado Department of Education, 2002 http://www.earfoundationaz.com/files/audiology/PediatricAndEducationalAudiologyRevisited.pdf).

Why is there the need for materials on unilateral hearing loss?

State EHDI programs strive to become more effective in tracking every child who fails newborn hearing screening into diagnosis and resulting in a referral to early intervention. The result of this is hundreds of families of babies with unilateral hearing loss who are seeking assistance to understand what the hearing loss may mean to their child's future and to receive direction on how they can best influence their child's success. Due to the increased in identification of infants with unilateral hearing loss, early intervention service providers who have long experience in serving children who are bilaterally deaf or hard of hearing have struggled with how to appropriately serve these children and their families as their needs are not the same.

SUMMARY OF RESEARCH ON EDUCATIONAL AND BEHAVIORAL AFFECTS OF UNILATERAL HEARING LOSS

Language Delay Language data were gathered from a videotaped parent-child interaction and two parent-report instruments, the Minnesota Child Development Inventory and the MacArthur Communicative Development Inventories for 26 children with unilateral hearing loss. Language data were examined across time and measures for the 15 children who participated in the assessment on multiple occasions. A consistent pattern of language delay was demonstrated by 27% of the children, with an additional 7% presenting with a borderline delay. Thus, approximately 1/3 of young children with unilateral hearing loss can be expected to exhibit language delays by the age of 15-18 months.

Social Issues Children with significant unilateral hearing losses have been identified as experiencing social, emotional and behavioral problems in school (Bess & Tharpe, 1984; Culbertson & Gilbert, 1986; Stein, 1983).When children with unilateral hearing loss were compared with normally hearing children on the Behavior Rating Scale, those with UHL had more negative ratings in the categories of dependence/independence, attention to task, emotional lability, and peer relations/social confidence. The mean percentage of negative ratings was 10.83 for the group with UHL and 4.42 for the group with normal hearing (Culbertson & Gilbert, 1986). Bess and Tharpe (1984) found that approximately 1/5 of children with UHL experienced social issues. In 1998, 6th and 9th graders were found to have greater difficulty functioning on social/emotional domains such as stress, self-esteem, behavior, energy and social support (Bess, Dodd-Murphy, & Parker).

Educational Risk Bess (1982) and his colleagues (Bess & Tharpe, 1984; Bess & Tharpe, 1986; Culbertson & Gilbert, 1986; Klee & Davis-Dansky, 1986) also brought to light the significance of unilateral hearing loss (UHL) and the challenges in the classroom related to hearing loss of greater than 20 dB in one ear. Although differences in language skills and intelligence were not found between those with UHL and normal-hearing children, slightly more behavior problems (e.g., giving up easily on new tasks; attention to task; peer relations/social confidence) were noted for the group with UHL. In 1998, Bess and colleagues found that 5.4% of school-age children whom they examined had minimal sensorineural hearing loss (MSHL), including unilateral loss. Of those children, about 37% had failed a grade in school and an additional 8% were judged not to be performing at grade level. This reflects a failure rate approximately 10 times that of the general school population. The retention rate among students with unilateral hearing loss (UHL) has been found to be 30-37% (Bess & Tharpe, 1986; Oyler, Oyler, & Matkin, 1986). A 2010 study matched 74 six-to-10-year-olds with their normal hearing siblings. They found that for children with unilateral hearing loss, scores on the Oral and Written Language Scales had about a 10-point drop. The oral composite score — which reflects children's ability to understand what is said to them and their ability to respond or express themselves — averaged 90 in children with hearing loss in one ear. The study demonstrated the strongest effect from hearing loss in one ear in children who are living below the poverty level or with mothers who have little education. Poverty levels and maternal education levels are well-established influences on language skills, and hearing loss in one ear may increase that effect. (Lieu, Tye-Murray, Karzon, & Piccirillo, 2010). In 2002–2003, Johnson also conducted a survey of 135 children from Colorado and 20 children from Michigan who had unilateral hearing loss. Data were available from children with unilateral hearing loss from preschool through high school. *Percent of children with unilateral hearing loss with passing scores on the Screening Instrument For Targeting Educational Risk* (*SIFTER) were as follows:*

SIFTER content area	% No Service	% 504 Plans	% on IEPs
Academics	71	50	31
Attention	69	70	55
Communication	60	40	28
Class Participation	81	100	55
School Behavior	94	90	76

Amplification A 2010 article (Johnstone, Nabelek, & Robertson) measured the sound localization ability of twelve children with UHL who use a hearing aid in the impaired ear. A hearing aid was found to significantly improve localization acuity in 6-9 year-old children with UHL who were fit prior to age 5 and significantly impaired the localization ability of 10-14 year-old children who were fit with a hearing at age 7 or older. It was concluded that early intervention with amplification may increase the likelihood of bilateral benefit. When unaided, the older children had localization ability that was significantly better than the younger children, however, without the bilateral benefit of amplification, children with UHL will not be able to localize sound as well as their normally-hearing peers. A repeated design study (Kenworthy, Klee, & Tharpe, 1990) of 6 children with UHL found that they experienced the most listening difficulty when speech originated from a midline position. The use of a CROS hearing aid was beneficial when listening to speech at midline, but was detrimental to speech from the side of the better hearing ear. An FM system however, improved listening under all conditions. Wazen et. al, (2003) found that transcranial amplification via a bone-anchored prosthesis (i.e., BAHA) resulted in higher patient satisfaction and better speech intelligibility in noise than a CROS hearing aid. In contrast, there was limited information supporting the use of a bone-anchored prosthesis in persons with congenital unilateral aural atresia with inconsistent findings across audiometric measures although a majority of patients felt improved quality of life (Danhauer, Johnson, & Mixon, 2010).

In summary, early amplification of children with UHL has a greater likelihood of resulting in improved localization ability and may also be advantageous in the development of listening in noise, but only if a hearing aid is fit early in life. Further studies are ongoing to establish the degree of expected advantage in localization and speech perception in noise, depending upon age of fitting.

References

The following resource is recommended for an overview of issues related to unilateral hearing loss:
http://www.cdc.gov/ncbddd/ehdi/documents/unilateralhl/Mild_Uni_2005%20Workshop_Proceedings.pdf

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Stein, D. (1983). Psychosocial characteristics of school-age children with unilateral hearing loss. *Journal of the Academy of Rehabilitative Audiology, 16*, 12-22.

Wazen, J. J., Spitzer, J. B., Ghossaini, S. N., Fayad, J. N., Niparko, J. K., Cox, K., Brackmann, D.E., Soli, S. D. (2003). Transcranial contralateral cochlear stimulation in unilateral deafness. *Otolaryngology – Head and Neck Surgery, 129*(3), 248-264.

Resource for Families

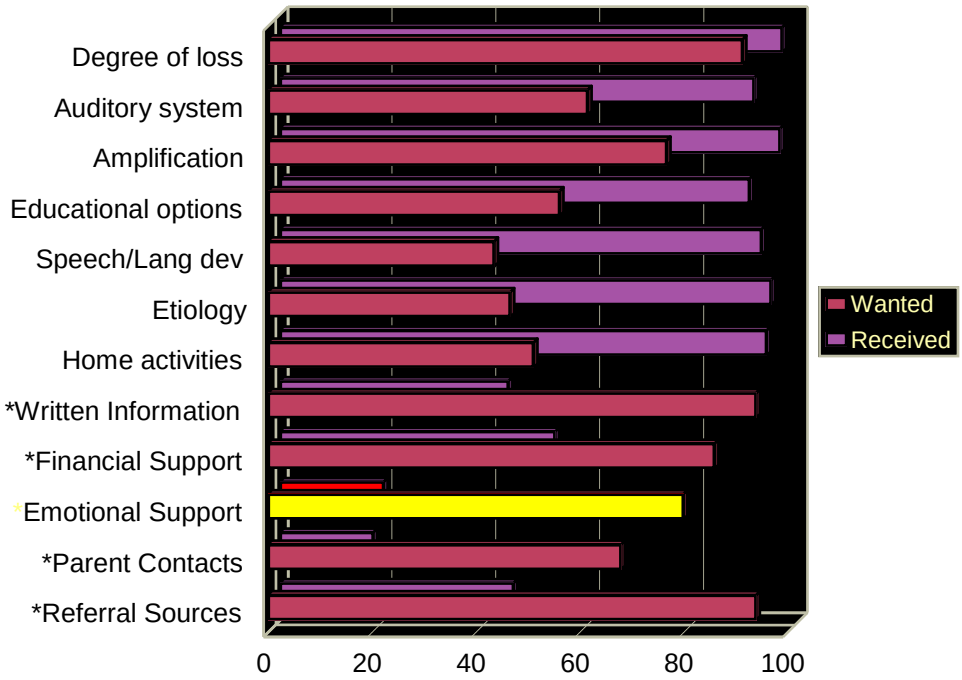
Hands & Voices: Unilateral Loss & Family Support
http://www.handsandvoices.org/articles/GoOn/V13-2_unifamsupport.htm

Unilateral Hearing Loss in Children: Guidance for Parents, ASHA:
http://www.asha.org/public/hearing/disorders/UHLchildren.htm

What Families Expect from Audiologists

The diagnostic process is the first step on a long journey for most families, and an imprinting process that sets up in the parent's mind future expectations for the behavior of audiologists and the many other professionals they will deal with on their journey. Ideally the initial interactions with the audiologist (1) will have a component where feelings are acknowledged; and (2) will strive to empower the parents from the beginning as active participants in the habilitation program.

Information Wanted vs. Received by Parents at Hearing Loss Confirmation



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The information in this section is based on the work of David Luterman (Luterman & Kurtzer-White, 1999; Luterman, 2001. As stated by Luterman, the medical model of presenting information after the diagnosis is not an effective tool, whether it is by committee or by individuals. Parents retain little of the information provided and trust issues between the parents and audiologist result. Instead of retaining much of what is said, they remember unimportant details such as the kind of glasses he or she wore.

A starting point for parents

Parents are typically anxious at the time of the diagnostic appointment. If the child is not being diagnosed with hearing loss at birth, the parents have likely compiled a list of experiences and observations of their child and they need to be allowed a chance to tell their story. It is critical for the audiologist to give them this chance. Client-centered counseling in the diagnostic process begins at this initial contact with the parent. What needs to be established at the outset is the major concern of the parent and the expectations they have of the audiologist. It is important to let them share anything they feel may be important. After they have told their story, enlist them as co-workers, such as "I may be an expert on identifying when a child has a hearing loss, but you are certainly an expert on this child and I need your help."

What do you think? (audiologists):

1. *Do you provide time for parents to tell their stories?*
2. *Do you enlist the help of parents when doing diagnostic testing?*
3. *What clinical practice routines would need to change for this to happen?*

What do you think? (interventionists):

1. *Do families report being involved in the diagnostic activities?*
2. *Do families seem able to describe how the audiologist diagnosed the hearing loss?*

A shift from the white coat expert model

Clinical procedures that separate families from the testing process increase denial because the parents can fantasize about the testing (broken machine, questioning audiologist's skills, etc.). Above all else, the self-report, which enlists the parents as co-diagnosticians, begins the process of empowering the parents. Active involvement of the parents in the diagnostic process diminishes the denial mechanism and strengthens the bond between the audiologist and the parents. Audiologists who deliver the word to the parents in the waiting room are often received with hostility. Parental satisfaction with follow up testing of children who failed newborn hearing screening was a function of parents being enabled as partners in the process and they were invited to be active participants and not passive observers.

What do you think?

1. *Have you ever dealt with a parent who seemed to deny there was a hearing loss?*
2. *Why did they seem to doubt the diagnosis?*

The desired outcome is that the parents take responsibility and are active participants in the educational and hearing loss management practices.

Seven steps for a healthy, collaborative, client-centered diagnostic process

1. Allow the family to tell their story: "What brought you here?"
2. Enlist the family as co-diagnosticians: "You are the expert on this child and I'll be the expert on the testing."
3. Involve the family actively in the test procedure. Engage the family as much as possible in eliciting or scoring responses.
4. Have the family participate fully in the diagnosis. Ideally, they will make the diagnosis.
5. Empower them by asking: "What do you need to know?" or "How can I be helpful to you right now?" Let them guide you on how much information to provide.
6. Listen and respond to the affect (body language, tone of voice). Give the parents a chance to talk about how they feel in an unhurried, caring atmosphere. If there is a time limit, tell the family at the outset: "I have 15 minutes before my next appointment, how can I be helpful to you?"
7. Set up another appointment. Do not try to cover everything in one appointment.

Parents as co-diagnosticians

The result of identifying children with hearing loss following a failure at newborn hearing screening allows the family no time to prepare for the shock of the diagnosis. Encourage the parent to be at your side as you introduce the stimuli and look for responses on the ABR or OAE equipment. Once they know in very general terms what you are looking for ask them if they see the waveform decrease as the stimuli intensity is decreased. Their involvement both educates them on the diagnostic process and also provides them little toehold for denial. In corroborative testing in the sound booth have one parent sit with you if possible and enlist his or her help in observing the child's responses. Ideally, the diagnosis will be made together.

Some DON'Ts for right after a diagnosis

1. Don't fill silence with information that the parent is not ready to hear – parents ask each question when they are ready for the answer.
2. Don't be afraid of tears; allow the parent to recognize that it is okay to feel badly.
3. Don't try to cheer up parents by saying their child could have a much worse hearing loss.
4. Don't agree with them if they offer an opinion that a unilateral hearing loss will not matter or that their child will probably not experience problems.

Some DOs for right after a diagnosis

1. As the test session finishes ask: "What do you need to know?" or " How can I be helpful to you now?"
2. It is okay to ask "Can you share with me how you are feeling?" or offer "Some parents at this time feel like they have been hit by a truck" – this is true, even for unilateral and mild hearing loss.
3. Listen nonjudgmentally, parents' feelings are to be respected, non minimized.
4. It is no use to try to focus their attention on content they cannot absorb. Set up the next appointment within a week.
5. Provide the family with a copy of the Unilateral Hearing Loss: What Parents Should Know brochure and let them know that you will answer their questions at the next appointment.
6. NOTE: in some clinical settings it is not possible to set up an appointment just to counsel patients. If this is the case, activities that have been specified as occurring in the first appointment after diagnosis can be included in the diagnostic appointment, although it is not recommended.

FIRST AUDIOLOGY APPOINTMENT AFTER DIAGNOSIS

1. Share *Young Children with Unilateral Hearing Loss: A –AN UNEXPECTED DIAGNOSIS.*
2. Acknowledge that it is hard when families find out that the perfect baby they dreamed about was born with a problem. Do NOT say that you understand unless you are a parent who has gone through it.
3. After providing *Young Children with Unilateral Hearing Loss: A- AN UNEXPECTED DIAGNOSIS* to the family members, sit respectfully silent and wait for them to ask the first question.
4. Alternatively, if the family does not speak after 30 seconds or so, acknowledge the idea of having a baby with a hearing loss in one ear is all new to them and ask what questions they would like to talk about first.
5. It can be anticipated that the families who received the Unilateral Hearing Loss: What Parents Should Know brochure will be interested in discussing this information.
6. At this point inform the family that you will be making a referral to early intervention services so that they can receive more support and information than can be provided just by the audiologist. <u>If you have a brochure from your local early intervention program present it to the family</u> at this time and mention:
    a. Early intervention is at no cost to parents.
    b. It is typically provided in the family's home at a time convenient to them.
    c. Early intervention starts with an evaluation of all of the child's skills – sometimes hearing loss occurs in conjunction with one or more other problems and it is good to rule this out or find out about it as early as possible (30-40% of children with hearing loss have additional problems that can affect development). It can take up to 6 weeks for this evaluation to be completed.
    d. Early intervention teachers can assist families after the evaluation is done and a plan is written. They help families to better understanding the affect of the unilateral hearing loss on language and social development and how they can help their child develop without delays.
7. Provide *Young Children with Unilateral Hearing Loss: B – HEARING DOES NOT ALWAYS STAY THE SAME* and spend a few minutes focusing on the portion of the Unilateral Hearing Loss brochure that states that ¼ of children with unilateral hearing loss develop hearing loss in the better hearing ear (does not apply to children with microtia/atresia). Before the family leaves, set up a hearing check appointment for the child to return in 3-4 months.
8. Provide *Young Children with Unilateral Hearing Loss: C – EARS WORK TOGETHER* and talk a little bit about the analogy. Quickly follow it up with *Young Children with Unilateral Hearing Loss: D – LISTENING CHALLENGES.*
9. State that hearing loss is invisible and often hard to understand, especially at first. That is why it is important that the family spend time understanding what it means for their child to have a hearing loss.
10. Provide the family with *Young Children with Unilateral Hearing Loss: E – EXPERIENCING UNILATERAL HEARING LOSS* and review the information with them. If possible, provide them with one or two sets of ear plugs so they can experience unilateral hearing loss at home.
11. Refer to the Unilateral Hearing Loss: What Parents Should Know pamphlet and briefly discuss the problems that hearing in only one ear can cause with language development, behavior and overall success in school. State that you will provide them with more information at the next appointment,

after they have had a chance to experience unilateral hearing loss. The early intervention teacher will also discuss this information and provide strategies for how these problems may be prevented. Emphasize again the importance of receiving early intervention services.

12. Finally, share *Young Children with Unilateral Hearing Loss: H – CONSIDERING HEARING AID USE.* It is ideal is to start hearing aid use by age 3 months and no later than 6 months. Provide the following choices to the family:

    a. Return in 2 weeks for an earmold impression and to further discuss their questions; say that you will share more information with them about the learning issues (handouts F & G) at that time after you have a chance to discuss their experiences listening with a unilateral hearing loss.

    b. Return after they have had a chance to get more information from early intervention; ideally before the child turns 3 months old. Hearing can be rechecked and use of a hearing aid can be further discussed.

    c. Some families won't be ready to move forward until after the hearing is checked in 3-4 months – with early intervention or anything else. Urge them to follow through on the hearing check as their child may be the 1 in 4 who's hearing changes. Share *Young Children with Unilateral Hearing Loss: F – POTENTIAL IMPACT ON LANGUAGE LEARNING* and *G – POTENTIAL IMPACT ON BEHAVIOR* with the family before they leave.

What do you think?

1. *Are you aware of any 'veteran' families who had a baby with unilateral hearing loss who may be willing to talk with new families?*
2. *Do you have a Hands & Voices chapter or some other organized parent network that you can call on to help you support these families?*
3. *If the child has one or more other developmental issue would the hearing loss seem as significant? What will you do different if that is the case?*

THE FOLLOWING EARLY INTERVENTION VISITS SHOULD OCCUR WITHIN THE FIRST 2-3 MONTHS AFTER DIAGNOSIS

FIRST EARLY INTERVENTION HOME VISIT APPOINTMENT

1. Start your home visit by asking families to "tell their story" including describing the diagnostic appointment.
2. Share *Young Children with Unilateral Hearing Loss: A- AN UNEXPECTED DIAGNOSIS.*
3. After providing *Young Children with Unilateral Hearing Loss: A* to the family members, sit respectfully silent and wait for them to ask the first question.
4. Alternatively, if the family does not speak after 30 seconds or so, acknowledge the idea of having a baby with a hearing loss in one ear is all new to them and ask what questions they would like to talk about first.
5. It can be anticipated that the families who received *the Unilateral Hearing Loss: What Parents Should Know* pamphlet will be interested in discussing this information.
6. Be prepared to answer questions about language, learning and social delays briefly, stating that you and the family will discuss these issues in depth during future visits. They will understand more about these problems once they better understand the kind of listening problems that hearing loss in one ear causes.
7. State that hearing loss is invisible and often hard to understand, especially at first which is why it is important for them to spend time understanding what it means for their child to have a hearing loss.
8. Provide *Young Children with Unilateral Hearing Loss: C – EARS WORK TOGETHER* and talk a little bit about the analogy.
9. State that hearing loss is invisible and often hard to understand, especially at first. That is why it is important that the family spend time understanding what it means for their child to have a hearing loss. The best teacher is experience. Provide the family with *Young Children with Unilateral Hearing Loss: E – EXPERIENCING UNILATERAL HEARING LOSS*. If possible, provide them with one or two sets of ear plugs. Emphasize that this is very important so that they can best understand their child's needs in the future and how they as a family can help their child. Let them know that you will discuss their thoughts from these experiences at the next visit.
10. Refer to the *Unilateral Hearing Loss: What Parents Should Know* pamphlet and briefly discuss the problems that hearing in only one ear can cause with language development, behavior and overall success in school. State that you will provide them with more information during your future home visits. The information may have more meaning to them after they have had a chance to experience unilateral hearing loss.
11. Before you leave, emphasize the importance of returning to the audiologist for the hearing recheck within 3-4 months. If the family does not seem to be familiar with the need for this appointment share *Young Children with Unilateral Hearing Loss: B – HEARING DOES NOT ALWAYS STAY THE SAME* with them. Offer to contact the audiologist to discuss the child's hearing. Let the family know that the information about the affects of unilateral hearing loss on learning are still new and some doctors and audiologists are not fully aware of the importance of acting early.

What do you think?

- *There are many different cultural nuances to understanding, belief and acceptance of a hearing loss. Based on the cultural backgrounds of the populations you serve, how may you need to adjust any or all of these family information materials?*

SECTION 3 – MAKING THE CASE THAT UNILATERAL HEARING LOSS IS SIGNIFICANT TO LISTENING

SECOND EARLY INTERVENTION HOME VISIT APPOINTMENT

1. Start by asking if there are any questions or information they want to be sure to cover during the visit. You can choose to rearrange the topics below based on their level of concern and interest.
2. Begin with referring to the analogy of the ½ foot in *Young Children with Unilateral Hearing Loss: C – EARS WORK TOGETHER. S*tate that analogies can help understanding but are not perfect. Just as our two feet work together so that we can walk smoothly on many kinds of smooth or rugged surfaces our two ears work together to help us listen in challenging situations. Ask the families what they think "rugged terrain" would be for listening. When is it most challenging to listen even with two good hearing ears? As a prompt you could say: Think of times when you are with other people, or are in different places where you really wanted to hear someone and it was difficult.
3. Family members will likely come up with noisy listening situations or when speech is distant. Those who have already experienced mild unilateral hearing loss should be encouraged to share their experiences at this time. If this is the case, discuss at length the challenges listening to soft speech, in distance, noise, and when distracted. Then share *Young Children with Unilateral Hearing Loss: D – LISTENING CHALLENGES*.
4. If the family members have not taken the time to experience unilateral hearing loss encourage them to think about challenging listening situations. Acknowledge that the scenarios they come up with are exactly right. State that the affects of one foot that does not work as well as the other foot would cause some problems. Can they think of when that would be? Now urge them to think of hearing. What kinds of situations would it be more difficult if you had problem hearing everything well? Share *Young Children with Unilateral Hearing Loss: D – LISTENING CHALLENGES*.
5. Take the time to work with family members and go through some of the listening activities on *Young Children with Unilateral Hearing Loss: E – EXPERIENCING UNILATERAL HEARING LOSS.* Be sure to demonstrate listening to the activities in the table on handout E as these are activities from the Early Listening Function (ELF) test that you will soon doing with the family to discover the child's listening bubble. It is important to have the reference of the listening bubble of the family members for different activities before doing the ELF activities with the child.
6. If the family has already experienced unilateral hearing loss, talk to them specifically about the ELF activities in the table and try to get them to describe their abilities to listen at a distance and then relate that to the concept of the listening bubble.
7. Be sure to talk at length about the concept of balanced hearing and how two ears work together. This is an important point for families of children with aidable residual hearing in their poor hearing ear to recognize as they consider trying a hearing aid. At this point do not bring up a hearing aid unless the family does. Give them more time to learn and integrate this new information with what they had dreamed about their child before he or she was born.
8. Provide *Young Children with Unilateral Hearing Loss: I – LISTENING FROM A DISTANCE* and *J – LISTENING IN BACKGROUND NOISE.* Link the concept of listening to proximity (listening bubble), interest and opportunity to hear meaningful speech.
9. Show the ELF to the family. Review the parent introduction information and the instructions. Answer any questions they may have about the activities. If needed, demonstrate with the parent how to watch to see if the child responded to a sound. Take turns if needed.
10. Emphasize that because the child does hear out of one ear normally that many of the loud and closer sounds will be heard easily. Having a unilateral hearing loss means subtle things can be missed – often, depending on which ear is facing noise or the person speaking. You will be talking more to them at future home visits about the affects of missing even parts of what is said.
11. Ask the family members to try to do some of the ELF activities. You will look forward to hearing what they learned and can help them do any remaining activities. Remind them that they have language already and can 'guess' when they only partially hear something.

THIRD EARLY INTERVENTION HOME VISIT APPOINTMENT

1. Start by asking if there are any questions or information they want to be sure to cover during the visit. You can choose to rearrange the topics below based on their level of concern and interest.
2. Review the family's ELF findings and/or collaborate with the family to identify the child's responses to the different ELF sounds. It is not important to do ALL of the sounds at EVERY distance. It is suggested that listening at 10 feet (across a large room) and 15+ feet (next room) be focused on and the affect of background noise be clearly demonstrated.
3. Relate results to the concept of the listening bubble and how near the adults should be if they expect their child to really hear them under different circumstances, like the car, outside, shopping, etc. Reinforce the concept of Language is Caught, Not Taught as you discuss the listening bubble.
4. Share the following handouts: *Young Children with Unilateral Hearing Loss: F – POTENTIAL IMPACT ON LANGUAGE LEARNING* and *G – POTENTIAL IMPACT ON BEHAVIOR.*
5. Now that the family has experienced unilateral hearing loss and discovered how their child's listening may be affected it is time to talk about what this means to learning. At this visit you will just introduce the ideas of language development and social or behavioral implications. You will spend future home visits helping the family understand strategies they can use during everyday activities that can help the child's language and social development.
6. Share *Young Children with Unilateral Hearing Loss: H – CONSIDERING HEARING AID USE.* Discuss the advantages of 'balanced hearing' (NOTE: children who have a severe-profound hearing loss often do not have enough residual hearing to achieve 'balanced hearing'). Review handouts I and J on listening at a distance and in background noise and how balanced hearing would be helpful. Answer any questions they may have about amplification use. Assure them that you will be readily available to help them learn how to use the hearing aid. Discuss what you and the family could look for to see if the hearing aid is helping the child. Offer to contact the audiologist if there was no mention made to the family about using amplification.
7. If the family has not been in contact with another 'veteran family' of a child with unilateral hearing loss offer to facilitate that contact. Parents feel many different things when they think about their child wearing a hearing aid and it can be helpful to discuss these thoughts and concerns with another family that has gone through these experiences.
8. If a family chooses to try amplification, at least one home visit will be dedicated to supporting use.

What do you think?

- *How does the 'discovery process' help families better understand their child's hearing needs?*
- *What is powerful about the concept of the listening bubble?*
- *As you work with families to help them understand the affects of the hearing loss, how are you empowering them so that they are better advocates and able to "face the world's questions"?*

EARLY INTERVENTION HOME VISIT APPOINTMENT DEDICATED TO USE OF A NEW HEARING AID

1. Start by asking if there are any questions or information they want to be sure to cover during the visit. You can choose to rearrange the topics below based on their level of concern and interest.
2. When a family has chosen to try a hearing aid it is likely that at least one home visit will be dedicated to instructing them in earmold insertion, hearing aid monitoring including the Ling 6 Sound Test, and coaching them on times that they can tune in to observe the benefit of the hearing aid.
3. After the child has had the hearing aid two or three weeks he or she should be wearing it most waking hours. At this point repeat the *Early Listening Function (ELF)* activities with them to see if there has been any change in the size of the listening bubble or other observable benefits. Provide the family with the *Early Listening Function Infant and Young Child Amplification Use Checklist*.

   Parents circle 1-5 scale: Agree, No Change, or Disagree

   My child appears to:

   1. Be more aware of my voice
   2. Be more aware of environmental sounds
   3. Search more readily for the location of my voice
   4. Have an increased amount of babbling or talking
   5. Have more interest in communicating

   During ELF listening activities, the size of my child's listening bubble:

   1. Has improved for quiet sounds voices
   2. Has improved for typical sounds and voices
   3. Has improved for loud sounds and voices
   4. Has improved for listening in background noise

   Describe specific situations when you noticed improvements in listening ability:
4. It is important that the family share their observations on the validity of the hearing aid fitting and its benefit with the audiologist before the end of the first 30 days (some audiologists may provide a 60-day trial period).

What do you think?

- *Have you asked families what their biggest fears or concerns are about their child wearing a hearing aid? What do you think they would say?*
- *How can the analogy be used to help them understand the importance? The ear plug experience?*
- *How are you empowering families so that they are able to "face the world's questions"?*

SECTION 4 – DEVELOPING EFFECTIVE INTERACTION SKILLS IN EVERYDAY ACTIVITIES

FOURTH AND FIFTH EARLY INTERVENTION HOME VISIT APPOINTMENTS

1. Start by asking if there are any questions or information they want to be sure to cover during the visit. You can choose to rearrange the topics below based on their level of concern and interest.
2. Help the family check the hearing aid and discuss any issues with daily wear.
3. Call the family's attention to *Young Children with Unilateral Hearing Loss: F – POTENTIAL IMPACT ON LANGUAGE LEARNING.* Say that you will be talking more with them during this home visit about 'keeping the language teacup full.'
4. To get across the importance of quantity of language used share *Young Children with Unilateral Hearing Loss: – LANGUAGE EVERYDAY AND EVERYWHERE.*
5. The early intervention teacher or speech language pathologist can then use their customary materials for helping families learn about communication strategies such as:
    a. SKI-HI Curriculum (http://hopepubl.com/proddetail.php?prod=103)
    b. Hanen Program (http://www.hanen.org/web/Home/HanenPrograms/ItTakesTwoToTalk/tabid/76/Default.aspx)
    c. Abecedarian Curriculum (http://www.kidsgrowth.com/resources/articledetail.cfm?id=992)
6. It may be helpful to families to share the handout *Sequence of Development for Infants and Toddlers: Auditory, Language, and Speech* from the Appendices section.
7. The early intervention teacher or speech language pathologist can then use their customary materials for helping families learn to foster early literacy skills such as:
    a. Gallaudet Shared Reading Project (http://clerccenter.gallaudet.edu/Clerc_Center/Information_and_Resources/Info_to_Go/Language_and_Literacy/Literacy_at_the_Clerc_Center/Welcome_to_Shared_Reading_Project.html)
    b. Early Literacy Fun CD (http://hopepubl.com/proddetail.php?prod=296)
    c. Initiatives through your local library or state initiative like Iowa's (http://www.ilsa.lib.ia.us/ECL/awareness.htm)
8. The early intervention teacher or speech language pathologist can share information on the importance of music to the children's development of auditory processing abilities (i.e., (Ho, Cheung & Chan, 2003 in her article Auditory-Processing Malleability: Focus on Language and Music pp. 106) and Parbery-Clark A, Skoe E, Lam C, Kraus N. (2009) Musician enhancement for speech in noise. Ear and Hearing 30(6): 653-661.) or see Nina Kraus research at http://www.soc.northwestern.edu/brainvolts/
9. Introduce the concept of monitoring the child's language development to the family. Provide them with a list of words, such as those found on the MacArthur Communication Development Inventories Checklists (http://www.kandersonaudconsulting.com/Early_Intervention.html) and encourage them to hang the list on the refrigerator.
10. Communication monitoring should occur at least at 6 months intervals, starting at 9 months of age. Remind the parents that children with unilateral hearing loss who end up with language delays often do not have problems until they reach 15-18 months old.

SECTION 5 – ADDRESSING BEHAVIOR AND SOCIAL DEVELOPMENT

Social interactions that assist in learning increase a child's level of thinking as well as developing their knowledge, values, and attitudes. In his theory of cognitive socialization, Vygotsky believed that learning was dependent on sharing through language and continual cooperation among learners. Social skills are needed not only for developing friendships, but as a modality for cooperative interaction and learning in small and large groups. Social skills help children become independent, productive adults. Vygotsky postulated that cognitive development and language are shaped by a person's interaction with others.

Social skills include:

- Rules of conversation
- Responding to social cues
- Making eye contact
- Smiling
- Saying hello and goodbye
- Being polite
- Cooperating by taking turns
- Responding appropriately to questions
- Being sensitive to the feelings of others
- Problem solving
- Supporting others by giving them attention and helping
- Having interesting things to say
- Reinforcing and acknowledging other's comments
- Controlling aggression and other inappropriate behaviors

How do we learn 'rules of behavior'?

Think about it – how do we learn to not touch something that is hot? A parent tells us not to touch, shows us what 'hot' means, and repeats it often. Children need to know the expectations, why it is wrong (hurt, dirty, impolite, mean), and to be praised when they are behaving well. Children can also learn by overhearing when another child is scolded or warned.

Children with unilateral hearing loss

Children with typical hearing in only one ear may miss early warnings (Don't touch it Marie). They may need more explanation or more times in which expectations are explained *(plants grow in dirt, dirt is messy, plants can be hurt if you pull on them, sometimes leaves are sharp, etc.).* They may not learn by example as quickly as children with two typically hearing ears. For example, the child may see another child warned or scolded but missed what the child did or said, so was unable to learn through that example. Warnings should be given in situations when the child is close, when there is no background noise, and when the child is paying attention. If another child is being warned or scolded the reason why should be made clear to the child with one hearing ear. Explain again and again – the why of expectations (*this builds language too!)*. Make sure your child really heard *and understood* the warning before a child is punished. Children in 'rugged listening conditions' often miss subtle social exchanges. They may hear two children close by speaking, look up and see the other children looking at him. The child who wasn't able to catch part of what the others were saying may think that he was being talked about. He may feel self-conscious or even angry. Social scenarios should be role played.

Information about early social skills and warning signs have been included in the *Materials for Families.*

Vygotsky, L.S. (1978). Mind and society: The development of higher mental processes. Cambridge, MA: Harvard University Press.

SECTION 6 – PREPARING FOR SCHOOL SUCCESS

Even children who have age appropriate language and typical behavior will still be at a disadvantage when it is time to start school.

Classrooms for young children are typically active and noisy places where the teacher is often across the room.

Families should consider how much of a challenge their child has functioning in noisy, active environments. Parents can identify situations in which their child may be having more trouble listening. These situations can be useful to identify as the parents start thinking about preschool or kindergarten. A child who has challenges at home in noise and at a distance is likely to in school as well. One way that families can consider how a child is functioning in different listening situations is to complete the *Children's Home Inventory of Listening Difficulties (CHILD)* test. There are 15 different listening situations and families rate how well they think their child is able to listen and understand in each setting. The CHILD is for children ages 3 years to approximately 12 years (young child must be playing with others, not parallel play). There is an Understand-O-Meter that helps to define how well a child is able to comprehend. There are two forms to the *CHILD,* one in which the parent completes the items and a form in which children ages 7-8+ complete items. The findings can be used as a means to discuss FM use in the home, assistive devices, and beneficial changes in family communication dynamics. Obtain the CHILD test at:
http://www.kandersonaudconsulting.com/uploads/child_questionnaire.pdf

If the child has language and other skill development within the normal range by school age the family can take it as an indication that their helping him or her as a young child was successful! Only children that demonstrate 'adverse educational affect' will be eligible for specialized instruction (special education) services as deaf or hard of hearing. As a child with normal hearing in only one ear, he or she will be at a learning disadvantage throughout the school years. This is a 'limitation to a life skill' that will usually make the child eligible to be considered for accommodations in the classroom. This can include special seating, amplification, and other daily supports. For more information refer to the unilateral hearing loss handout at:
http://www.kandersonaudconsulting.com/Listening_and_Learning.html

Summary

- The child has a hearing loss that will affect him throughout his life.
- The child's hearing *may* change.
- Try amplification as early as possible!
- Without early assistance your child may develop language delay and/or social or behavioral issues.
- Children with unilateral hearing loss are at 10 times the risk for school problems.
- Get help from early intervention ASAP!
- Monitor language growth regularly.
- Plan for your child's transition to school.

Section 7:

Your Child with Hearing Loss in One Ear:

What does it mean to grow up with unilateral hearing loss?
What can you do to help him/her now?
Preparing for school success

Materials to share with families

A. AN UNEXPECTED DIAGNOSIS

B. HEARING DOES NOT ALWAYS STAY THE SAME

C. EARS WORK TOGETHER

D. LISTENING CHALLENGES

E. EXPERIENCING UNILATERAL HEARING LOSS

F. POTENTIAL IMPACT ON LANGUAGE LEARNING

G. POTENTIAL IMPACT ON BEHAVIOR

H. CONSIDERING HEARING AID USE

I. LISTENING FROM A DISTANCE

J. LISTENING IN BACKGROUND NOISE

K. LANGUAGE EVERYDAY AND EVERYWHERE

SIGNS OF SOCIAL AND EMOTIONAL WELL-BEING FOR INFANTS, TODDLERS AND PRESCHOOLERS

WARNING SIGNS FOR POTENTIAL SOCIAL-EMOTIONAL CONCERN

Young Children with Unilateral Hearing Loss: A – AN UNEXPECTED DIAGNOSIS

You expected your baby to be perfect

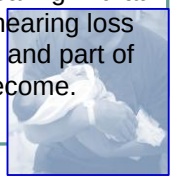
- Parents dream of who their babies will be, the joy they will bring and their possible futures, all before they are ever born.
- Your baby came with a surprise you never expected or thought about – hearing loss.
- You don't want to believe it.
- It doesn't seem real that your baby could have any problem.

You want to believe your baby is perfect

- It <u>is</u> real. You have a baby with a hearing loss in one ear that will never go away.
- Maybe that ear looks different. Maybe it looks perfect – just like the other ear.
- The hearing loss will be a part of him every day of his life.
- You are thankful that hearing loss is only in one ear but don't want him to have it at all.

It is hard to accept your baby is not perfect

- When a baby is so young it is hard to believe that hearing tests can be accurate.
- Hearing tests <u>are</u> very accurate, even when babies are only days or weeks old.
- Whether you child has some hearing in that ear or no hearing, there <u>is</u> a hearing loss that is part of who she is now and part of the child and adult she will become.



Your child is who she or he is.

- Hearing loss in one ear is as much a part of who she is as her eye and hair color.
- She will need your love, care and guidance just as if she had no hearing loss.
- She is a whole person, even if she has a hearing loss in one ear.
- As parents, you will want to understand what it means to have good hearing in only one ear.

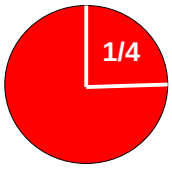
Having a child with a hearing loss in one ear is still very new to you.

What questions do you have? What would you like to talk about first?

Young Children with Unilateral Hearing Loss: B – HEARING DOES NOT ALWAYS STAY THE SAME

Families need to know…

Hearing does not always stay the same.



It appears that one out of every four children with one normal hearing ear **will develop hearing loss in their better hearing ear.**

This appears true for the children normal looking ears, not those born with a deformed ear. We cannot predict which children will end up having permanent loss in both ears!

Any additional hearing loss…

- In the better hearing ear
- Or in the poor hearing ear

WILL increase the child's chance of developing greater listening, language, behavior and learning issues.

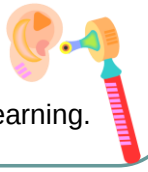
This does NOT mean that ¼ of these children become deaf in both ears, just that some amount of additional hearing loss – *great or small* - will develop.

Something families need to know!

Hearing does not always stay the same.

Children can have ear infection that can cause hearing loss in both ears.

This additional hearing loss will affect them more than other children because they are relying so heavily on their one better hearing ear for listening and learning.



Something families need to know!

Hearing does not always stay the same.

Hearing can be damaged by loud noises, even when they occur only once.

A child with hearing in only one ear must rely on that ear to hear from their whole lives – they can't afford to damage this hearing!

Keep your child away from loud sounds or protect their hearing with ear plugs.

We cannot predict which children with unilateral hearing loss will develop permanent hearing loss in their better hearing ear. A minority of children with hearing in only one ear has an ear deformity and this possibility of hearing loss developing in the better hearing ear does not seem to apply to them. If your child has two ears that look perfect he or she has a 1 in 4 chance of developing hearing loss in BOTH ears. Only repeated testing during the first 2-3 years of life will identify if your child will be one who has hearing that changes.

What to do:

Changes in permanent hearing loss:

1. Return to the audiologist for a hearing check-up every 3-4 months until the child is 3 years old or the audiologist says that testing this often is no longer necessary. Next appointment _____

Ear infections:

2. About 1 child in every 6 children has serious problems with recurring ear infections before they start school. Fluctuating hearing loss – or hearing loss that comes and goes – happens hand in hand with ear problems. Because your child relies on one ear, this inconsistent hearing may have a much greater affect on their listening and eventual learning. If you think your child may have an ear infection seek medical care promptly!

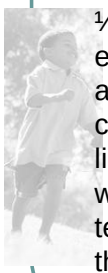
Noise induced hearing loss:

3. Prevention is job #1. Keep your child away from noisy settings. If he or she must be there (i.e., family celebration with fireworks) be sure that the child wears ear plugs.

How bad can it be? The good ear will compensate for the bad ear, won't it?

- Hearing loss is invisible and difficult to understand, especially when someone seems to hear most sounds or most times but not always.
- It is very common to think that because we have two ears that if something is wrong with one ear, the other ear will do the work of two ears.
- In reality, we need both ears to perform well in all listening situations.

An analogy to help us understand.



Think about a child who was born with only ½ of one foot. We require two feet to equally support the weight of our bodies as we walk. With only one normal foot, a child will still learn to walk and run, but likely not as fast or smoothly as children with 2 normal feet; especially in rough terrain or when competing in a race. Can the one good foot really compensate for the ½ foot? No, but having only one good foot works fine in many situations.

What to expect at home

- Your baby can hear normally with one ear. As you diaper him, feed him, play with him you will see him respond to sound.
- He CAN hear.
- You are close to him. It is quiet. He is interested in what you are doing.
- Thinking about our analogy, this is like walking on flat ground with plenty of time to get where you want to go.

Rugged terrain

- Think again of the child with ½ foot playing with other children in a large park with grassy areas, rocky climbing areas, and an obstacle course to jump, skip and hop.
- She can play anywhere she likes with the other children, have fun and get exercise.
- She will have difficulty experiencing some of the things to do at the park. She may need to work harder, may avoid some, or may be able to do it all, only at a slower pace.

Analogies can help understanding but are not perfect.

What do you think "rugged terrain" would be for listening?

When is it most challenging to listen, even with 2 ears?

When one foot does not work as well as the other foot there would be times when a child may have some problems. Can you think of when that would be?

Now think of hearing. What kinds of situations would it be more difficult if you had problem hearing everything well?

A foot and ear are not the same

The analogy of the child with ½ foot is a starting place to understand that 2 ears are really needed, and one ear cannot do the job of two ears.

There is at least one big difference as we think about the child with only one normal foot and your child with only one normal ear – listening is strongly tied to the ability to learn at home and at school! A foot problem will likely not impact learning.

Rugged listening terrain

So "rugged listening terrain" would be any situation in which listening is not easy, specifically:

DISTANCE &

BACKGROUND NOISE.

Distance

The concept of the *LISTENING BUBBLE*

Not in listening range

Distance

The concept of the *LISTENING BUBBLE*

In listening range!

Every day listening with 2 ears

Hearing is a distance sense.

We monitor what is going on around us with our hearing.

Think about all you hear right now – in the room you are in, sounds from other places in the building, sound from outside.

Two ears working together hear just a bit better than one ear working alone. Summation effect.

We turn our heads to use both ears to locate where sound is coming from. Binaural effect.

How 'far' can a child hear?

It depends! How interested is the child in the sound? How much background noise?

She may hear the cookie jar opening from the next room because she loves cookies.

He may not seem to hear when spoken to from the same room if he is very interested in what he is doing.

BUT children with only one ear do not hear as well as children who have 2 ears that work together.

Listen carefully. What can you hear right now? How 'far' can you hear?

What would be the size of your Listening Bubble right now?

What do you think would happen if there was quiet? Background noise?

You need to experience hearing loss in only one ear yourself

- Buy foam ear plugs at the hardware or drug department of a large store.
- Be sure to insert it correctly so it causes a mild (30-35 dB) hearing loss.
- Be ready to record your thoughts as you try the different activities.
- Make a commitment to yourself to wear one earplug **for at least 3 hours**.

Activities to take turns doing with one or more people in your 3 hours:

1. Spend time talking quietly with someone with the television on in the background.
2. Use some of the listening activities below from another room or from across a large room

QUIET Activities	TYPICAL Loudness Activities	LOUD Activities
Whispered voice	Water running full on	"moo, moo" in loud voice
Rubbing palms together briskly	Song (Mary had a little lamb)	Loud door knock (knuckles)
Quiet clucking tongue	Clapping hands, quiet applause	Clacking spoons on hand
"buh buh buh" said quietly	"ship, ship, ship" said normally	Hit fry pan with metal spoon

   a. when you are not looking at the other person
   b. when you are reading or doing something you really enjoy or that interests you
   c. in quiet
   d. when there is background noise.
3. Listen to a TV show or radio show – don't turn up the volume.
4. Have a conversation sitting close with no background noise.
5. Talk in the car with your 'bad ear' toward the person speaking while driving
6. Talk to someone outside at a distance.

Your thoughts and reactions: (*Think in terms of Listening Bubble size)*

What was your amount of effort to understand all speech in

Quiet_____

Across room_____

Another room_____

Noise (TV) _____

_____

Sounds that were harder to hear_____

In car _____

Outside distance_____

How much effort did it take you to listen? _____

How did background noise affect your ability to pay attention and easily understand what was said?

_____

What was the difference between having a conversation within a few feet and from across the room, outside or in the car? _____

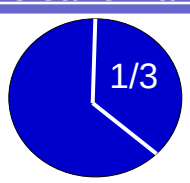
Other thoughts?_____

_____

Remember – you already have developed language and have the ability to 'fill in the blanks' if you miss part of a word. Your child is still developing language and does not have this same ability to "guess".

Families working with early intervention teachers learn how to "grow the language garden" while they play and take care of their child everyday .

Potential impact of hearing loss in one ear on language learning



As many as one out of every three children with only one good hearing ear develop delays in the number of words they say by the time they are 15 – 18 months old.

Not keeping a child's daily 'cup of language' full will have consequences!

Language learning, every hour a child is awake, every day, everywhere.

Babies learn language by hearing it around them every day. Parents don't 'teach' children to learn how to talk.

Your child will learn language whenever you interact with him and as he sees you communicate with other people.

Language is caught, not taught.

Born and ready to grow!

- Children's brains are ready to start to learn language as soon as they are born.
- Picture your child's brain as an acre of rich soil that is ready to grow an incredible garden.
- A beautiful garden needs seeds planted, a plan for a variety of colors and types, it needs to be watered, tended, and carefully cared for to be sure it is all growing well.

Your Child's 'Language Garden'

- Your child's garden of language – this acre of rich soil - needs to be filled with blooms and thriving plants by the time he or she is 3 years old. A whole acre!
- The more people who try to spread seeds and tend the garden will help.
- Having good GARDENERS – people who really know how to grow plants – will help. Having many gardeners in the child's life will really help!

Planting the language garden

- Your child will 'catch' new language and concepts that he can hear throughout every day. Each chance for him to hear you talk about what he is interested and what is going on around him is a chance to plant new seeds.
- To grow a rich garden you need to work at it! Know that you are planting seeds and your daily effort will tend this garden. Your early intervention teacher can help you with a plan for growing words.

Time to sprout!

- Sometimes a child will seem to pick up a word immediately, other times it seems like all you will do is talk, talk, talk with no new words from your child.
- Know that it takes time, especially for new seeds to sprout. Once your child has some words and concepts and sees that he can get what he wants from using words, the garden will grow more quickly and start to spread. It still needs many moments of daily care! You have a whole acre to fill!

Scenario 1 – young child

Mama is folding laundry on the bed while John crawls on the floor. Mama gives John 2 socks as she is folding. She talks about the pants, colors of the shirts, two socks and socks going on John's feet.

After a bit John sees the cat and crawls away into the next room. Mama can still see him and she now talks about the cat.

John may not hear every word clearly, but has many opportunities to catch language.

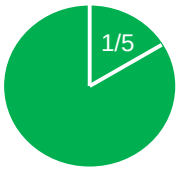
Scenario 2 – young child

Mama is folding laundry on the bed while John crawls on the floor.

After a bit John sees the cat and crawls away into the next room. Mama sees him and tells him to leave the cat alone.

John did not have many opportunities to catch new language that describe things that interest him. He would have greater consequence if he missed any words due to hearing with only 1 ear.

Potential behavior & social issues



Children with unilateral hearing loss may find it hard to hear directions and soft speech. That can lead to frustration and poor behavior. One out of five children develop behavior or social issues.

As children get older they may think that other people are talking about them when they really just did not hear what was said, especially by peers.

How we learn 'rules of behavior'

Think about it – how did you learn to not touch something that is hot?

A parent told you to not touch, showed you what 'hot' meant, and repeated it often.

Children need to know the expectations, why it is wrong (hurt, dirty, impolite, mean), and to be praised when they are behaving well.

They also can learn by overhearing when another child is scolded or warned.

Background noise scenario

Mama is doing dishes and the television is on. Marie is on the kitchen floor playing with containers and a spoon. Mama tells Marie to play with the dishes.

Marie soon stops playing and crawls away toward a house plant. Mama tells her to not touch. Marie pulls the plant. Mama rushes over and tells her she is a bad girl.

Marie tuned out in background noise. She had no warning before seeing Mama mad.

Learning to behave with 1 ear

Children may:

- Miss early warnings *(don't touch it Marie)*
- Need more explanation or more times in which expectations are explained *(plants grow in dirt, dirt is messy, plants can be hurt if you pull on them, sometimes leaves are sharp, etc)*
- Not learn by example as quickly *(see another child warned or scolded but missed what the child did or said)*

Fair chances to good behavior

- Warnings should be given in close, no background noise, when the child is paying attention
- If another child is being warned or scolded the reason why should be made clear to the child with one hearing ear
- Explain again and again – the why of expectations (*this builds language too!)*
- Make sure your child really heard *and understood* the warning before you punish

Those subtle social rules

Children in 'rugged listening conditions' often miss subtle social exchanges.

May hear 2 children close by speaking. When the child looks up he sees the other children looking at him. The child who wasn't able to catch part of what the others were saying may think that he was being talked about. He may feel self-conscious or even angry.

Social scenarios should be role played.

Families working with early intervention teachers learn how to reinforce and shape appropriate behavior while they play and take care of their child during every day activities.

The scenario above hints at how children with unilateral hearing loss can seem to misbehave when they actually did not realize that they were doing something wrong. Your early intervention teacher can share interaction strategies with families that may assist in behavior management and result in children who find their world predictable and feel good about themselves.

WHAT TO DO

Try a hearing aid. If your child has hearing in the worse ear (i.e., thresholds between 35 – 75 dB) then it may be possible for a hearing aid to 'balance out' the child's hearing ability – meaning provide near normal hearing in the poor hearing ear. Amplification could help with sound location and listening in noise!

Children who are deaf in one ear *may* have too much loss to cause improvement.

A hearing aid – but he hears fine in one ear!!!

Think back to our analogy with the child who was born with ½ foot. If there was a prosthesis (like a strap on foot) that would allow the child to walk gracefully with a normal gait, to run similar to, but maybe not as fast, as other children - would it make sense for the child to use it? Would it help him as he is learning to walk? Would it help him fit in better when playing with other children because he could keep up more easily?

Parent comments on hearing aid use

Other parents of children with unilateral hearing loss have tried hearing aids and said:

- *He doesn't talk so loud when wearing his aid.*
- *He was missing one half of everything before he got his aid.*
- *He hears sounds he never heard before.*
- *Doesn't interrupt people in group situations now.*
- *It is a very positive thing.*
- *Audiologists and doctors say children with only one good hearing ear will be fine—they are not fine!*

Try it and see….

Adults report that "balanced" hearing improves ease of listening, results in less strenuous conversations and improved incidental listening and learning.

A hearing aid doesn't always help every child with unilateral hearing loss.

The only way to tell is to try a hearing aid and watch for improved listening – the difference may be subtle *but important!*

How soon should we try a hearing aid?

The earlier a child tries amplification and gets used to 'balanced hearing' the easier it will be for him or her to adjust to hearing with both ears and want to wear the hearing aid all the time.

Another thought about hearing aid use

Brains develop due to constant stimulation.

With ¼ of children potentially developing hearing loss in both ears, early stimulation of the poor hearing ear may end up making a real difference in the child's ability to compensate if all or most hearing is lost in both ears.

Think of it as 'keeping an ear in reserve' if the worst happens (and it may!).

If your child has two perfect ears no one will know about the hearing loss unless you tell them. If he or she wears a hearing aid then everyone will see that your child is not perfect. Most people do not understand that a hearing loss in one ear can cause significant learning problems in about ½ of these children but you know that "he will get by just fine" may not be true at all for your child. <u>YOUR Choices are:</u>

a. Do what you can to help prevent listening, learning and social problems by allowing your child to hear his or her best – every day, in every situation. He has a *right* to hear and to learn like other children.

b. Hope that he will get by, realizing that language, self esteem, and behavior are likely to be affected by the hearing loss. Will he still "be all that he can be"? Probably not, but maybe that is acceptable to you.

c. Wait and see if he will be affected, even though this will lose learning time that can never be made up. Children who wait to get hearing aid(s) until closer to school age typically do not adjust very well (see b).

Every day listening with 2 ears

Hearing is a distance sense.

We monitor what is going on around us with our hearing.

Think about all you hear right now – in the room you are in, sounds from other places in the building, sound from outside.

Two ears working together hear just a bit better than one ear working alone. Summation effect.

We turn our heads to use both ears to locate where sound is coming from. Binaural effect.

How 'far' can a child hear?

It depends! How interested is the child in the sound? How much background noise?

She may hear the cookie jar opening from the next room because she loves cookies.

He may not seem to hear when spoken to from the same room if he is very interested in what he is doing.

BUT children with only one ear do not hear as well as children who have 2 ears that work together.

Distance

The concept of the *LISTENING BUBBLE*

Not in listening range

Distance

The concept of the *LISTENING BUBBLE*

In listening range!

Scenario 1 – distance listening

Mama is folding laundry on the bed while John crawls on the floor. Mama gives John 2 socks as she is folding. She talks about the pants, colors of the shirts, two socks and socks going on John's feet.

After a bit John sees the cat and crawls away into the next room. Mama can still see him and she now talks about the cat.

John may not hear every word clearly, but has many opportunities to catch language.

Scenario 2 – distance listening

Mama is folding laundry on the bed while John crawls on the floor.

After a bit John sees the cat and crawls away into the next room. Mama sees him and tells him to leave the cat alone.

John did not have many opportunities to catch new language that describe things that interest him. He would have greater consequence if he missed any words due to hearing with only 1 ear.

Your child has the advantage of having one good hearing ear. He or she is also at the disadvantage of having hearing loss in the other ear that makes it harder to tune in over a distance. Families need to be aware of the need to be closer to the child if you expect him or her to <u>really</u> hear you. Make use of every opportunity to provide your child with rich language that describes what he or she is interested in. Your early intervention teacher will help you learn more about how to do this during everyday activities.

Hearing 'through' noise

People have 2 ears to help them locate sound and also to help listen in noise.

Without even being aware of it we use both ears when we are listening in noise by pointing one ear a bit more to the person we are trying to listen to and the other ear a bit more toward the noise. Our heads actually help to block out a bit of the noise so the one ear can 'tune in' better to the speaker or preferred sound.

Listening in noise with one ear

Children with only one normal hearing ear have greater difficulty locating where sounds are coming from and understanding speech or recognizing sounds when there is competing noise.

Children with one hearing ear will need more time to locate sounds and it will take more effort to focus on sounds in background noise. They are more likely to 'tune out' in noise.

Background noise - scenario 1

Mama is doing dishes and Marie is on the kitchen floor playing with plastic containers and a large wooden spoon.

Except for when she is running water, mama talks about the big dish and the little dish; the red top and the green top; the spoon going bang, bang - providing the language that describes what Marie is interested in at the moment.

Background noise scenario 2

Mama is doing dishes and Marie is on the kitchen floor playing with plastic containers and a large wooden spoon.

Mama is running water, and the television is on. Mama tells Marie to play.

Marie stops playing in a few minutes and Mama wonders why she bothered getting out things for Marie to play with.

Background noise scenario - 3

Mama is doing dishes and the television is on. Marie is on the kitchen floor playing with containers and a spoon. Mama tells Marie to play with the dishes.

Marie soon stops playing and crawls away toward a house plant. Mama tells her to not touch. Marie pulls the plant. Mama rushes over and tells her she is a bad girl.

Marie tuned out in background noise. She had no warning before seeing Mama mad.

Potential for many missed language opportunities over time

- Picture a child learning language as a cup that family members fill up drop by drop, spoon by spoon every day.
- With every drop and spoonful a child has the potential to 'catch' new words.
- **EVERY DAY** children with only one good hearing ear will **miss** part of the language that is said around them
- Children exposed to many words will be less affected by missing some.

LANGUAGE IS CAUGHT, NOT TAUGHT!

With a unilateral hearing loss background noise and distance are barriers to children 'catching' all the language that occurs around them. Children learn much of what they know from over hearing other people talking or attaching a new word and concept together. Picture your child seeing a brown truck, hearing a knock on the door, and then a seeing a package that is for them – suddenly 'truck' or 'UPS' or 'present' has real meaning! This is called incidental learning. Language needs to 1) be in the child's listening bubble, 2) be of interest to the child, 3) interactive and meaningful if a child is going to learn new words and concepts. Your early intervention teacher will help you learn more about how you can easily do this during every day activities.

30 Million Word Gap

1995: Betty Hart and Todd Risley spent 2 1/2 years intensely observing the language of 42 families through out Kansas City. They looked at household language use by 1) professional families; 2) working class; 3) welfare families. They gathered an enormous amount of data during the study finding a 30 million word gap between the vocabularies of welfare and professional families by age three.

- http://archive.aft.org/pubs-reports/american_educator/spring2003/catastrophe.html

30 Million Word Gap

Welfare children heard, on average, 616 words per hour, while children of college educated parents heard 2153 words per hour. Research in the following years found a high correlation between vocabulary size at age 3 and language test scores at ages 9 and 10 in vocabulary, listening, syntax, and reading comprehension.

- http://archive.aft.org/pubs-reports/american_educator/spring2003/catastrophe.html

More language used, more language learned!

Families' Language and Use Differ Across Income Groups

	Families					
	Professional		Working-class		Welfare	
Measures & Scores	Parent	Child	Parent	Child	Parent	Child
Recorded vocabulary size	2,176	1,116	1,498	749	974	525
Average utterances per hour	487	310	301	223	176	168
Average different words per hour	382	297	251	216	167	149

Hart & Risley, 1995; 30 million word gap between professional & welfare by age 3.

20,000 hours of listening

To learn to read, children's brains need to engage in about 20,000 hours (5+ years) of listening.

Constant listening attention allows children to contrast sounds with one another.

All of this input is needed before the brain makes the connection between the sounds to corresponding letters of the alphabet.

The HEARING – LISTENING – READING Connection

Without those 20,000 hours of listening children are less ready to read at the same rate as other children their age – and they may never catch up.

The HEARING – LISTENING – READING connection is important to your child's future. Keeping the 'language teacup full' and reading, rhyming, singing to him or her everyday will make a difference!

ANY FAMILY CAN DO IT! EVERYDAY YOUR CHILD NEEDS YOU TO:

- Talk about what he is interested in – giving him the words the go with his exploration of the world.
- Talk about everyday happenings, activities, questions, problem solving, planning ahead, I wonder….
- Read – young children love the same books again and again.
- Say rhymes, focus on letter sounds (big blue ball, buh, buh, buh), sing songs

Signs of social and emotional well-being for infants, toddlers and preschoolers

From Center on the Social and Emotional Foundations for Early Learning http://csefel.uiuc.edu

Infant/Toddler	Recommended Actions
From birth to age 3 months	**Parent or Caregiver**
Looks at faces	Looks lovingly at baby — Listens to baby
Listens to voices	Talks and sings to baby — Offers a warm smile
Quiets when picked up (the majority of the time)	Touches baby gently — Holds and cuddles baby
Cries, smiles and coos	Picks up and soothes crying baby
	Reads with baby
From 3 to 6 months Parent or Caregiver	
Gives warm smiles and laughs	Holds baby when feeding
Cries when upset, and seeks comfort	Shares baby's smiles and laughter
Can be comforted (the majority of the time)	Notices and pays attention to baby
Likes to look at and be near special person(s)	Responds to baby's cries and coos
Shows excitement by waving arms and legs	Holds and reads to baby
	Plays lovingly with baby
From 6 to 9 months Parent or Caregiver	
Plays games like "patty cake"	Takes pleasure in games with baby
Responds to own name	Talks to baby in gentle voice
Enjoys a daily routine and transitions from situation	Is predictable and consistent
to situation with relative ease and needs	Watches and knows what baby wants
May get upset when separated from familiar person(s)	Reads with baby
Unsure of strangers	Sings songs and says nursery rhymes to baby
May comfort self by sucking thumb or holding special toy or blanket	
From 9 to 12 months	**Parent or Caregiver**
Able to be happy, mad and sad	Names feelings like happy, mad, sad
Shows feelings by smiling, crying, pointing	Is available, responsive, gentle and protective of baby
Has a special relationship with parents and caregivers	Talks, sings songs and says rhymes to baby
Is curious about playthings	Encourages baby to explore
Imitates others	Reads books with baby
Enjoys books	
Trusts that needs will be met	
From 12 to 18 months	**Parent or Caregiver**
Safe and secure in loving relationships	Offers safe and trusting relationship
Curious about people	Shows interest in toddler
Explores with enthusiasm	Is loving toward toddler
Bold and confident	Talks, listens and responds to toddler
Says "mama," "dada," and up to eight additional words	Reads, sings songs and plays with toddler
(and some two-word sentences) by 18 months	Uses words to tell toddler "what comes next"
Uses words for feelings: happy, sad, mad	
Responds to changes in daily routine	
From 18 to 24 months	**Parent or Caregiver**
Laughs out loud	Shares in toddler's laughter
Loving toward others	Loving toward toddler
Plays beside other children	Encourages curiosity
Enthusiastic	Celebrates what toddler does
Protests and says "No!"	Sets limits that are firm, fair and consistent
Curious and likes to explore people, places and things	Responds evenly and respectfully with toddler
Enjoys books, stories and songs	Reads, talks, listens, plays and sings to toddler
From 24 to 30 months	**Parent or Caregiver**
Uses words to communicate	Talks to toddler and uses words for feelings
Playful with others	Supports toddler's play
May be shy in unfamiliar places	Helps toddler feel comfortable
Likes people	Enjoys toddler and plays simple games
Uses pretend play	Encourages imaginary play
Smiles and laughs	Reads to toddler every day
Enjoys lots of different books and simple games	Praises and encourages toddler

From 30 to 36 months
Able to play independently
Easily separates from primary caregivers in familiar places
Begins to share with others without difficulty
Shows feelings for others
Expresses many feelings: sad, happy, frightened, angry
Enjoys books and games

Parent or Caregiver
Encourages toddler to play independently
Helps toddler to separate
Helps toddler to share with others
Helps toddler to use words for feelings
Listens and responds to toddler's feelings
Disciplines positively and consistently
Tells stories, reads and encourages pretend play

Warning signs for potential social-emotional concern

From Center on the Social and Emotional Foundations for Early Learning http://csefel.uiuc.edu

Parents and other caregivers will need information, consultation and referral if the infant …

- Resists holding
- Is difficult to comfort or console; has prolonged inconsolable crying
- Has sleeping or eating difficulties (sleeps or eats too much or too little)
- Is failing to thrive
- Rarely seeks or makes eye contact, or typically avoids eye contact with parents
- Appears unresponsive to efforts to interact or engage
- Rarely coos, babbles or vocalizes
- Has limited ability to regulate emotions

Parents and other caregivers will need information, consultation and referral if the toddler or preschooler …

- Shows little preference for or excessive dependence on the parent(s) or other primary caregiver
- Does not show any apprehension about strangers
- Appears excessively irritable or fearful
- Has an inappropriate or limited ability to express feelings
- Lacks interest or curiosity about people or playthings
- Fails to explore his or her environment
- Often appears sad and withdrawn
- Has inappropriate sexual behavior
- Has inappropriate impulsive or aggressive behavior
- Has excessive fears that do not respond to reassurance
- Experiences frequent night terrors
- Has extreme and frequent tantrums
- Experiences significant language delays
- Exhibits unusual need for order or cleanliness

APPENDICES

- **Unilateral Hearing Loss: What Parents Should Know pamphlet**

Generic Unilateral HL brochure (2).pdf

- **Schedule of activities for audiologists and interventionists serving young children with unilateral hearing loss**
- **Sequence of Development for Infants and Toddlers: Auditory, Language, and Speech**
- **Relationship of Hearing Loss to Listening and Learning Needs: Unilateral Hearing Loss**

Suggestions for Evaluation and Management of Infants Identified by Newborn Screening:
Mild and Unilateral Sensorineural Hearing Loss

AGE	AUDIOLOGICAL	FAMILY-CENTERED INTERVENTION
2 weeks to 3 months of age	Hearing loss indicated via universal newborn hearing screening, high-risk indicators, or referral. Confirm presence/degree of loss via OAE/ABR. Refer family to local early intervention program (Part C). Share written information with parent[1]. If unilateral loss, consider amplification. If hearing aids are recommended, seek medical clearance and begin the necessary funding approval process.	UNHS personnel inform parents of newborns that do not pass universal hearing screening about the results of screening in a culturally sensitive and language appropriate manner and the describe the need for evaluation to rule out the presence of a hearing problem. Initial contact with family by early intervention program (EIP). EIP to provide written information describing the schedule of communication and auditory development[1]. Discuss potential effects of hearing loss on listening, language and social development. Instruct on effective communication.
3-6 months	Appropriate amplification fit to hearing loss by pediatric audiologist[2]. Fit loaner hearing aids as necessary while waiting for 3rd party payer approval. Special consideration given to instrument specifications such as noise reduction/suppression, locking battery drawer, FM capability. Communicate/consult on specific amplification considerations with early interventionist and parent to assure fit of amplification to natural environment needs.	Offer to connect the parents with other parents of children with unilateral or mild hearing loss. Stress the importance of frequent, meaningful parent – child interactions at close proximity. Emphasize the concept of "Language is caught, not taught" and the importance of early auditory development. Early interventionist assists with establishing the amplification wear pattern, provides tips to keep hearing aid(s) on child, practice Ling 6-sound test.
6-9 months	Behavioral testing to confirm degree of hearing loss and obtain frequency specific information. Compare to early OAE/ABR confirmation for indication of possible loss progression. Coordinate with early interventionist to collaborate with family for completion of Early Listening Function[3] (ELF) or other amplification validation measure.	Coordinate with audiologist and family to complete the ELF or other amplification validation and auditory skill development measure such as Little Ears[4]. Discuss the possibility of hearing loss progression and need for monitoring of hearing ability.
9-15 months	Reevaluate hearing to check stability of hearing loss. Research indicates ¼ of children with hearing loss may have loss develop in the better ear. Remake earmolds as needed. Reverify output, gain, frequency response of amplification in relation to ear canal growth[2]. Cross-check appropriateness of amplification via feedback from parent and early interventionist. Now that child is mobile, consider appropriateness of use of FM in home or child care.	Check communication and cognitive milestones[6]. Now that child is mobile, discuss impact of listening from a distance and background noise as interfering with learning incidental language. Share information on child's development with audiologist. Work with the family on establishing consistent behavior expectations.
16-24 months	Reevaluate hearing to check stability of hearing loss. Remake earmolds as needed. Reverify amplification performance. Cross-check appropriateness of amplification via feedback from parent and early interventionist (i.e., via ELF). Communicate any changes in hearing status with early interventionist. Discuss lifelong need to avoid overexposure to noise and for regular hearing tests.	At 24 months obtain more comprehensive assessment of child development[6]. Delays in expressive language may begin to be apparent by 18 months. If concerns, address the need for communication intervention services. Discuss early literacy development and emphasize the importance of reading aloud to the child on a daily basis.
25-36 months	Reevaluate hearing, including WIPI half-list at 40 dB HL. Remake earmolds as needed. Reverify amplification performance. Discuss the need to begin to train child to put on own hearing aid(s). Provide modeling on how to answer peer questions about wear of hearing aid(s). As child approaches entry into preschool, in conjunction with the early interventionist, pursue the purchase of a personal, classroom, or desk-top sound field amplification system. Consider FM need based on support from parent report (CHILD[7] report form) or if WIPI test results for perception of low level speech in +5 S/N are < 88% correct.	Monitor communication development at 30 months. Discuss transition to community or public school preschool setting at age 3, especially if there are deficit areas present. Discuss need for child to develop independent skills with hearing aid(s). Final communication inventory and evaluation prior to age 3. Coordinate with audiologist to complete the CHILD test. Provide information to parent on the potential need to establish a 504 plan at school-age; advocate for a special education evaluation if learning delays are present; and the potential need for FM technology in school classrooms.

1. Example: So Your Child Has A Hearing Loss, http://www.agbell.org
2. ASHA Pediatric Working Group on Amplification Fitting
3. Early Listening Function (ELF), http://www.phonak.pl/com_elf_questionnaire_gb.pdf or www.sifteranderson.com
4. Little Ears Auditory Questionnaire http://www.medel.com/US/img/download/BRIDGE_Catalog.pdf
5. Suggested instruments: Communication and Symbolic Behavior Scales- Developmental Profile (CSBS-DP) The Mullen Scales of Early Learning; Ages and Stages Questionnaires (ASQ), http://firstwords.fsu.edu
6. Examples: Minnesota Inventory of Early Child Development (24-40 months), ELM; Denver Developmental Screening Test
7. Children's Home Inventory for Listening Difficulties (CHILD) www.sifteranderson.com or http://www.oticonusa.com/eprise/main/SiteGen/Uploads/Public/Downloads_Oticon/Pediatrics/CHILD_Questionnaire.pdf

Sequence of Development for Infants and Toddlers: Auditory, Language, and Speech

Approx. Age	Auditory Development	Language Development	Speech Development
0-28 days	Startle response; attends to music and voice, soothed by parent's voice; some will synchronize body movements to speech patterns; enjoys time "enface" position; hears caregiver before being picked up		
1-3 months	Looks for sound source; associates sound with movement; enjoys parent's voice; attends to noise makers; imitates vowel sounds	Startles to loud sounds; smiles when spoken to; seems to recognize parent voice and quiets if crying; increases or decreases sucking behavior in response to sound.	Makes pleasure sounds (cooing, gooing); cries differently for different needs. Smiles when sees known caregiver
4-7 months	Uses toys/objects to make sounds; plays with noise makers; pays attention to music; enjoys rhythm games; responds to changes in tone of caregiver voice; notices toys that make sound; moves eyes in direction of sounds	Recognizes some words; responds to verbal commands (bye-bye); learning to recognize name;	Babbling sounds more speech-like with many different sounds, including p, b, and m. Vocalizes excitement and displeasure; makes gurgling sounds when left alone and when playing with caregiver.
8-12 months	Attends to TV; localizes to sounds/voices; enjoys rhymes and songs; enjoys hiding game; responds to vocal games (e.g., So Big!!,Peek-a-boo)	Recognizes words for common items like "cup," "shoe," "juice." Begins to respond to requests. Understands NO.	Babbling has both long and short groups of sounds such as "tata upup bibibibi." Uses speech or non-crying sounds to get and keep attention. Imitates different speech sounds. Has 1 or 2 words (no, dada, mama) although they may not be clear.
1-2 years	Dances to music; sees parent answer telephone/doorbell; answers to name call; listens to simple stories, songs, and rhymes	Points to pictures in a book when named; points to a few body parts when asked; follows simple commands and understands simple questions ("Roll the ball" "Where's your shoe?")	Says more words every month. Uses some 1-2 word questions ("Where kitty?"). Puts 2 words together ("More cookie"). Uses many different consonant sounds at the beginning of words.
2-3 years	Listens on telephone; dances to music; listens to story in a group; goes with parent to answer door; awakens to smoke detector.	Understands differences in meaning ("go/stop," "up/down"). Follows two requests ("Get the book and put it on the table"). Attends to travel activities and communication.	Has a word for almost everything. Uses 2-3 word "sentences" to talk about and ask for things. Speech is understood by familiar listeners most of the time. Often asks for or directs attention to objects by naming them.

Adapted from: Ear Infections and Language Development, www.ed.gov/pubs/edpubs.html and Developmental Index of Auditory and Listening (DIAL), www.edaud.org

Relationship of Hearing Loss to Listening and Learning Needs

Child's Name:_____ **Date:**_____

UNILATERAL HEARING LOSS

Possible Impact on the Understanding of Language and Speech	Possible Social Impact	Potential Educational Accommodations and Services
• Child can "hear" but can have difficulty understanding in certain situations, such as hearing faint or distant speech, especially if poor ear is aimed toward the person speaking. • Will typically have difficulty localizing sounds and voices using hearing alone. • The unilateral listener will have greater difficulty understanding speech when environment is noisy and/or reverberant, especially when normal ear is towards the overhead projector or other competing sound source and poor hearing ear is towards the teacher. • Exhibits difficulty detecting or understanding soft speech from the side of the poor hearing ear, especially in a group discussion.	• Child may be accused of selective hearing due to discrepancies in speech understanding in quiet versus noise. • Social problems may arise as child experiences difficulty understanding in noisy cooperative learning, or recess situations. • May misconstrue peer conversations and feel rejected or ridiculed. • Child may be more fatigued in classroom due to greater effort needed to listen, if class is noisy or has poor acoustics. • May appear inattentive, distractible or frustrated, with behavior or social problems sometimes evident.	• Allow child to change seat locations to direct the normal hearing ear toward the primary speaker. • Student is at 10 times the risk for educational difficulties as children with 2 normal hearing ears and 1/3 to 1/2 of students with unilateral hearing loss experience significant learning problems. • Children often have difficulty learning sound/letter associations in typically noisy kindergarten and grade 1 settings. • Educational and audiological monitoring is warranted. • Teacher inservice is beneficial. • Typically will benefit from a personal FM system with low gain/power or a sound-field FM system in the classroom, especially in the lower grades. • Depending on the hearing loss, may benefit from a hearing aid in the impaired ear.

Comments:

Please Consider Indicated Items in the Child's Educational Program:

_____Teacher inservice and seating close to teacher _____Hearing monitoring at school every ____mos. _____Amplification monitoring

_____Contact your school district's audiologist _____Protect ears from noise to prevent more loss _____Educational support services/evaluation

_____Screening/evaluation of speech and language _____Note-taking, closed captioned films, visuals _____FM system trial period

_____Educational consultation/ program supervision by specialist(s) in hearing loss _____Regular contact with other children who are deaf or hard of hearing

_____Periodic educational monitoring such as October and April teacher/student completion of SIFTER, LIFE

NOTE: All children require full access to teacher instruction and educationally relevant peer communication to receive an appropriate education.

Distance, noise in classroom and fragmentation caused by hearing loss prevent full access to spoken instruction. Appropriate acoustics, use of visuals, FM amplification, sign language, notetakers, communication partners, etc. increase access to instruction. Needs periodic hearing evaluation, rigorous amplification checks, and regular monitoring of access to instruction and classroom function (monitoring tools at www.SIFTERanderson.com).