



My child has a hearing loss

A guide for parents



PHONAK
life is on

Content

You are not alone	3
Hearing loss	5
Methods of testing hearing	6
Audiogram	7
Types and causes of hearing loss	8
Degree of hearing loss	10
Where can I find help for my child?	13
Choosing the most suitable solution	15
Hearing aids	16
Cochlear implants	17
Wireless accessories – boost hearing performances	18
Roger systems	19
Communication methods	21
Practical communication tips	22



You are not alone

The discovery that your child has a hearing loss can be emotional.

Being able to accept that the hearing loss is real and then learning as much as possible about what you can do are big steps towards making the best decisions for your child.

Building a successful future

Such efforts as early as possible in the formative years will make a difference in your child's future, laying the groundwork for success. Since the learning process is challenged by the fact that information received by a child with a hearing loss is either limited or altered, it is important to learn what is available to help.

Fortunately, your child is living in an age when technology and support offer many excellent options. There is every reason to be optimistic about what can be done to help your child

reach his or her highest potential. Using the advanced technology and many resources available to the fullest will help make this happen.

To ensure success as your child grows, you will want to create an enriched learning environment and apply effective communication techniques to maximize learning and socialization to the benefit of your child's overall development. If you move ahead taking positive steps, one at a time, your child will benefit and you will be able to look forward to a satisfying future.

We sincerely hope this collection of information will help to enhance the learning experience for your child.



Hearing loss



Since your child was diagnosed with a hearing loss, you probably have had many questions. The first one might well be, what is hearing loss? A hearing loss may be described in either words or numbers. When discussing hearing loss, the term "hard of hearing" is used if a person's degree of loss is in the mild to severe range and "deaf" if they are in the profound range and have little usable residual hearing. People who are born with a severe to profound hearing

loss may have difficulty learning to speak clearly because they simply cannot hear other people's sounds very well. This makes imitating sounds difficult as it is necessary in the process of developing speech. They are also unable to hear their own voices well when they try to speak. The tables on pages 7 and 11 provide more information about the types and degrees of hearing loss.



It is estimated that roughly 3 children per 1,000 are born with a hearing loss. Studies show the number is far greater if children with fluctuating hearing loss (resulting from ear infections), high-frequency hearing loss and unilateral hearing loss are included. That could amount to about one in ten children or more.

Methods of testing hearing

Fortunately, a person of any age can be given a hearing test, even a newborn infant.

Objective tests

The hearing ability of all children including newborn infants and young toddlers can be evaluated by objective measurement techniques called brainstem auditory evoked response (ABR, BAER or BSER) or otoacoustic emissions (OAE). These tests can be performed as the child sleeps or rests, often shortly after birth in the nursery before leaving the hospital. The tests are brief, painless and accurate.

Behavioral tests

Additional observational testing called behavioral testing and conditioned play audiometry can provide very useful information about a child's ability to hear long before they are capable of cooperating in a regular hearing test. Because of this, appropriate actions can be taken sooner than ever before.

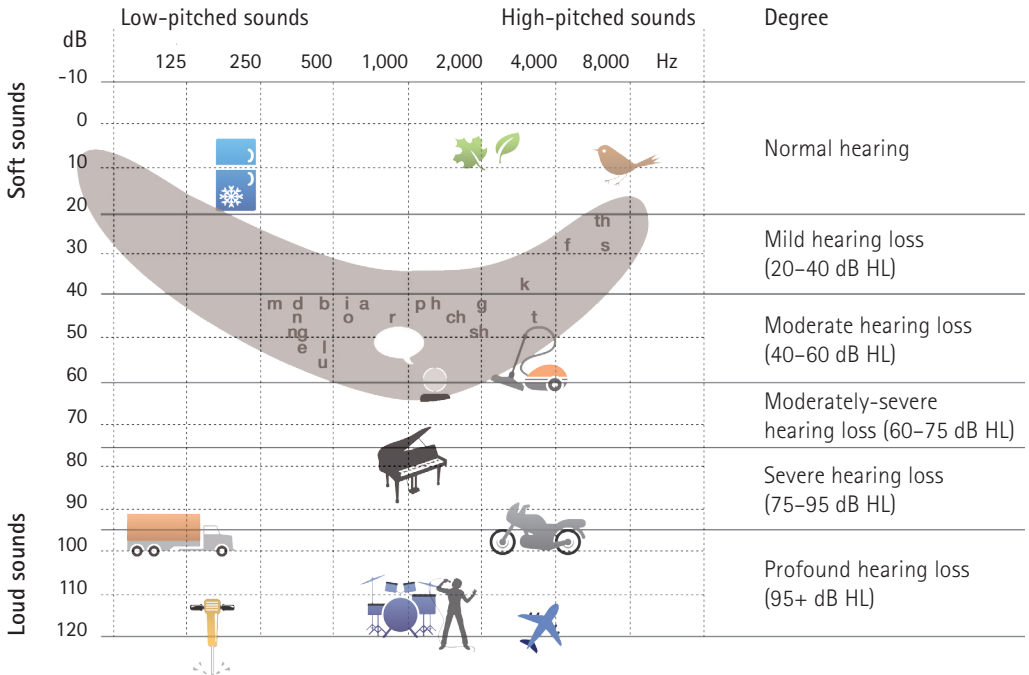
Hearing assessment results

The scientific method for measuring hearing loss (and sound in general) is in decibels (the unit to measure sound which is abbreviated dB). The results of hearing tests are charted on an audiogram. An audiogram is a form filled out during a hearing test recording the level of hearing at different frequencies across a range of low- and high-pitched sounds. This enables the physician/audiologist to understand the level and type of hearing loss and so advise on the appropriate treatment options. Regular testing also allows the hearing levels to be monitored over time.





Audiogram



To learn more about how to read your child's audiogram, visit <http://www.babyhearing.org/hearingamplification/hearingloss/audiogram.asp>

Types and causes of hearing loss

It is not always possible to find the precise cause of some types of hearing loss. In many cases, there is no history of hearing loss in the family. There are conditions which may occur before or at birth, during infancy or in childhood that may affect a child's ability to hear normally.

There are two main types of hearing loss: conductive hearing loss and sensorineural hearing loss.

Conductive hearing loss

Conductive hearing loss results in a loss of loudness. Basically sounds are just not loud enough to be heard well. This can be permanent or temporary depending on what is causing the loss.

Some causes of conductive hearing loss include:

- Otitis media – an infection in the middle ear
- Perforated ear drum – a hole in the ear drum

- Cholesteatoma – a cyst in the middle ear
- Otitis externa – an infection in the ear canal
- Otosclerosis – disease resulting in calcification of stapes (stirrup) in middle ear
- Excessive or impacted ear wax which causes a blockage in the ear canal
- Collapsed ear canal

If there is fluid in the middle ear, the loss is temporary if given prompt medical attention. Other causes can be remedied by medical or surgical techniques or by amplifying sound with hearing aids.

Sensorineural hearing loss

Sensorineural hearing loss leads not only to a loss of loudness but clarity as well. There is generally no medical or surgical help available to correct for sensorineural hearing loss, however, today's digital hearing aids and cochlear implants can provide significant assistance.

Correcting the lack of clarity that may be associated with a sensorineural hearing loss is not completely possible by amplifying sounds. It is important to be aware of this difference between a conductive

and a sensorineural loss. This helps you to understand why some people with hearing loss seem to manage better than others.

Most parents wonder what caused their child's hearing loss. This is a question best answered by your child's physician. Why not make a note to discuss this at your child's next appointment?



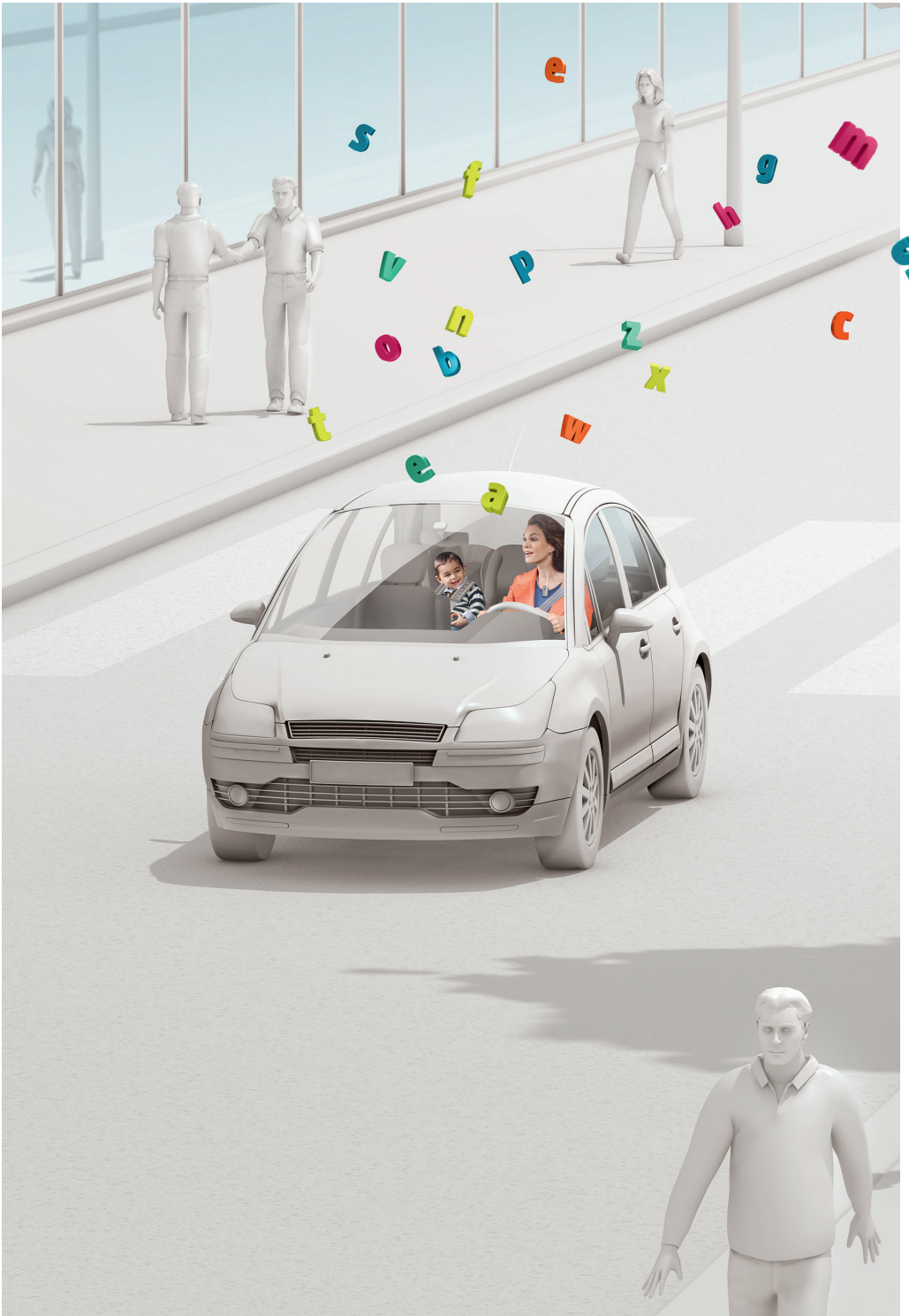
Degrees of hearing loss

The degrees of hearing loss are classified as mild, moderate, severe and profound. The table opposite offers a guide to the different degrees of hearing loss, the decibel level and an example to demonstrate the loudness of these levels. Each level brings different challenges and

the need for different treatment and technology options. These examples offer an approximate guide only. The outcomes depend on the needs and abilities of each individual child. Your doctor or hearing care professional can offer more detailed information specific to your own child.



Degree of hearing loss	Loudness example	dB level (dB)	Possible challenges and needs
Normal hearing	Rustling leaves, clock ticking	Up to 20 dB	Very few hearing-related problems.
Minimal/mild hearing loss	Quiet/whispered speech, clicking fingers	20–45 dB	May have difficulty hearing quiet voices. Depending on where your child falls in this range, he or she may benefit from amplification or may require extra support in school.
Moderate hearing loss	Quiet/normal conversational speech	45–60 dB	Should understand conversational speech when facing the speaker and up close. Will need to use hearing aids. May require extra support in school (e.g., Roger technology/favorable seating). Roger solutions may also be helpful at home.
Moderately-severe hearing loss	Normal/loud speech, doorbell	60–75 dB	Conversation must be loud. With correctly programmed hearing aids, will hear normal conversational voices in quiet or at close range. Will benefit from extra help in school (e.g., Roger technology/favorable seating). Roger solutions may also be helpful at home.
Severe hearing loss	Telephone ringing, thunder, baby crying	75–90 dB	May hear loud voices up close. Will need to use hearing aids in order to hear conversational speech. Will benefit from extra help in school (e.g., Roger technology/favorable seating). Roger solutions may also be helpful at home.
Profound hearing loss	Truck, chainsaw	90 dB or more	Will need to wear appropriate amplification technology (e.g., hearing aids, cochlear implants) in order to hear conversational speech. Will benefit from extra help in school and at home (e.g., Roger solutions).



Where can I find help for my child?



If your child has a hearing loss, there are professionals who are able to offer you support and guidance.

Audiologist

A healthcare professional who holds a degree in audiology and is a specialist in testing hearing and/or hearing loss and providing rehabilitative services including hearing aids to people with hearing loss.

ENT physician

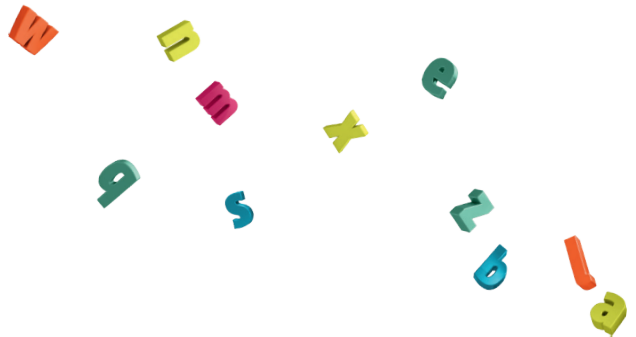
A physician who specializes in medical problems of the ear, nose and throat. Otologist, otolaryngologist and neuro-otologist are alternative names. This could vary depending on where you live. Your family doctor will be able to advise you.

Hearing aid dispenser/acoustician

A healthcare professional who is trained to dispense and fit hearing aids.

Speech language therapist/ pathologist

A healthcare professional who is trained to provide services related to the prevention, evaluation and rehabilitation of speech-language disorders.





Choosing the most suitable solution



Today there is virtually no child with a hearing loss that cannot benefit from the use of appropriate technology.

Once a hearing loss is diagnosed, hearing aids are usually tried first. It is wise to have your child fit with hearing aids as soon as possible to ensure optimum benefit. The choice you make about which type of hearing aids will depend on a

number of factors: the level of your child's hearing, your child's needs and the needs of your family all play a role. Remember that you do not have to make these choices on your own. A hearing care professional can advise you.



Hearing aids

Hearing aids have progressed a great deal in recent years and offer a whole range of technologies designed to meet each child's specific hearing needs.

BTE hearing aids

Young children will normally be fit with hearing aids worn Behind-The-Ear (BTE). These come in compact sizes, a variety of bright, cheerful colors and can help a wide range of hearing losses.



BTE with external receiver (RIC)

One option for older children is Receiver-In-the-Canal (RIC) hearing aids. The microphone remains in the BTE casing but the receiver is externally placed in the ear canal. This allows the hearing aid to be smaller and more cosmetically appealing.



ITE hearing aids

Older children may be candidates for In-The-Ear (ITE) hearing aids, which are custom made and fit inside the ear. These can help children with mild to moderate hearing losses.



The decision on whether your child should be fit with one or two hearing aids depends mainly on the configuration of their hearing loss. If they have a hearing loss in both ears for instance, wearing two hearing aids helps with localizing sounds and hearing better, even in noisy environments.

Cochlear implants

One technological development that helps individuals with severe to profound sensorineural hearing loss is a cochlear implant.

A cochlear implant is a medical device, surgically implanted to bypass damaged parts of the inner ear. In order for a child to hear with the implant, they must also wear a speech processor which looks similar to a hearing aid. It is suitable for children as young as 1 year of age who are diagnosed with a severe-profound or profound hearing loss in both ears and who receive little or no benefit from hearing aids. Cochlear implants can also be used together with Roger systems.



Wireless accessories – boost hearing performance

A child's life is one of action. If they're not in school then they're outdoors, playing games, in the car, or chatting with friends on the phone.

Many of these situations can pose a listening challenge – one where sometimes even the most advanced hearing aid technology needs a boost.

That's where our comprehensive Wireless Communication Portfolio comes in.

With our new easy-to-use wireless accessories, developed especially for challenging and distracting situations, children can communicate more easily and connect to today's audio technology.



Roger systems

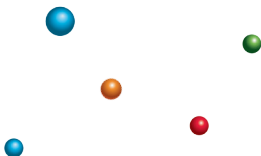
No matter what hearing instruments or cochlear implants students wear, Roger can help them hear, understand and perform better in class.

The path to better hearing begins with choosing the correct hearing aids. However, at times, noise or room acoustics may severely affect hearing. In a classroom, where many children are often speaking at the same time, it might be very difficult for a child with a hearing loss to filter out the background noise. Distance also dramatically reduces speech understanding, as does reverberation or echoes. In these situations, even the most advanced hearing aid technology needs a boost. That's where Roger technology comes in.

Roger technology has been designed specifically to pick up speech signals at the source and transmit them,

clearly and without distortion, directly to the user's ear through a Roger receiver. They create a basis for optimum speech intelligibility, independent of the acoustic surroundings. At a young age, delivering a very clear speech signal to the child supports the development of language, speech and learning.

Roger systems consist of one or more wireless microphones worn by the talkers – who could be the parents at home, or a teacher at school – and tiny receivers, which can be attached to the hearing aids.



If you would like to find out more about the technology that may suit your child's hearing needs, visit our website www.phonak-us.com/kids

Communication methods

Additional questions commonly asked by many parents of a child with a hearing impairment include: "Will my child ever be able to talk to me?" and "How will I talk to my child?". Speech ability depends on the level of your child's hearing as well as the use of technology. Many children with hearing loss develop good speech and

language when given the appropriate support and training. The sooner your child is exposed to speech and language, the better. There are many methods of communication: orally, with gestures or with sign language. Current communication methods may use one, some or all of these.



Practical communication tips

The following list of suggestions can help in communicating with your child.

1. Encourage your child to get into the habit of watching the speaker, even if listening is not difficult. It is good to get in the habit of paying attention.
2. Teach your child not to interrupt the speaker before he or she finishes a sentence. Your child may not understand the beginning, but may catch the end of the sentence, which can aid in understanding.
3. Instruct your child to let the speaker know when he or she missed something, and to ask for it to be repeated if they did not understand.
4. Help your child to learn to summarize what he/she did hear so that the communication partner knows what to fill in.
5. If your child does not appear to understand what is being said, rephrase the statement rather than simply repeating the misunderstood words. Present the topic of conversation. (For example, "We are talking about ...")
6. Help your child with hearing loss know that it's normal to feel more fatigue than other students after classes since they must work so much harder to keep up with the information presented.

7. Speak clearly and slowly at a distance of between 3 and 6 feet, or use a Roger system.
8. Stand in clear light facing your child for greater visibility of lip movements, facial expressions and gestures. Do not speak to your child unless you are visible to him or her. Remember the rule, "If they can't see me, then they can't hear me."
9. Reduce or move away from background noise. Help to manipulate the environment to allow communication in as noise-free an atmosphere as possible. If your child wears hearing aids with directional microphones, try to ensure any background noise is behind your child. He or she should face whatever or whomever they are listening to.
10. Do not overarticulate. Exaggerating your mouth movement distorts the sounds of speech and the speaker's face, making the use of visual clues more difficult.
11. Captioning can help when watching television or a film.



Life is on

We are sensitive to the needs of everyone who depends on our knowledge, ideas and care. And by creatively challenging the limits of technology, we develop innovations that help people hear, understand and experience more of life's rich soundscapes.

**Interact freely. Communicate with confidence.
Live without limit. Life is on.**

www.phonak-us.com/kids

Donna S. Wayner, Ph.D., author of *Hearing and Learning: A Guide for Helping Children*, prepared the material in this booklet.

Copies of her various books about hearing and hearing loss can be obtained at: www.hearagainpublishing.com