World Health Organization

WORLD HEARING DAY

3 MARCH 2025

A to Z of Hearing Loss in Children

By 2030, there will be over 500 million people with disabling hearing loss worldwide and over one billion young people face the risk of permanent hearing loss due to prolonged exposure to loud sounds during recreational pastimes such as listening to music and playing video games.

Despite the staggering statistic, not many people know about hearing loss in general, or in children, to be specific. There are many aspects of hearing loss in children that can be explored.

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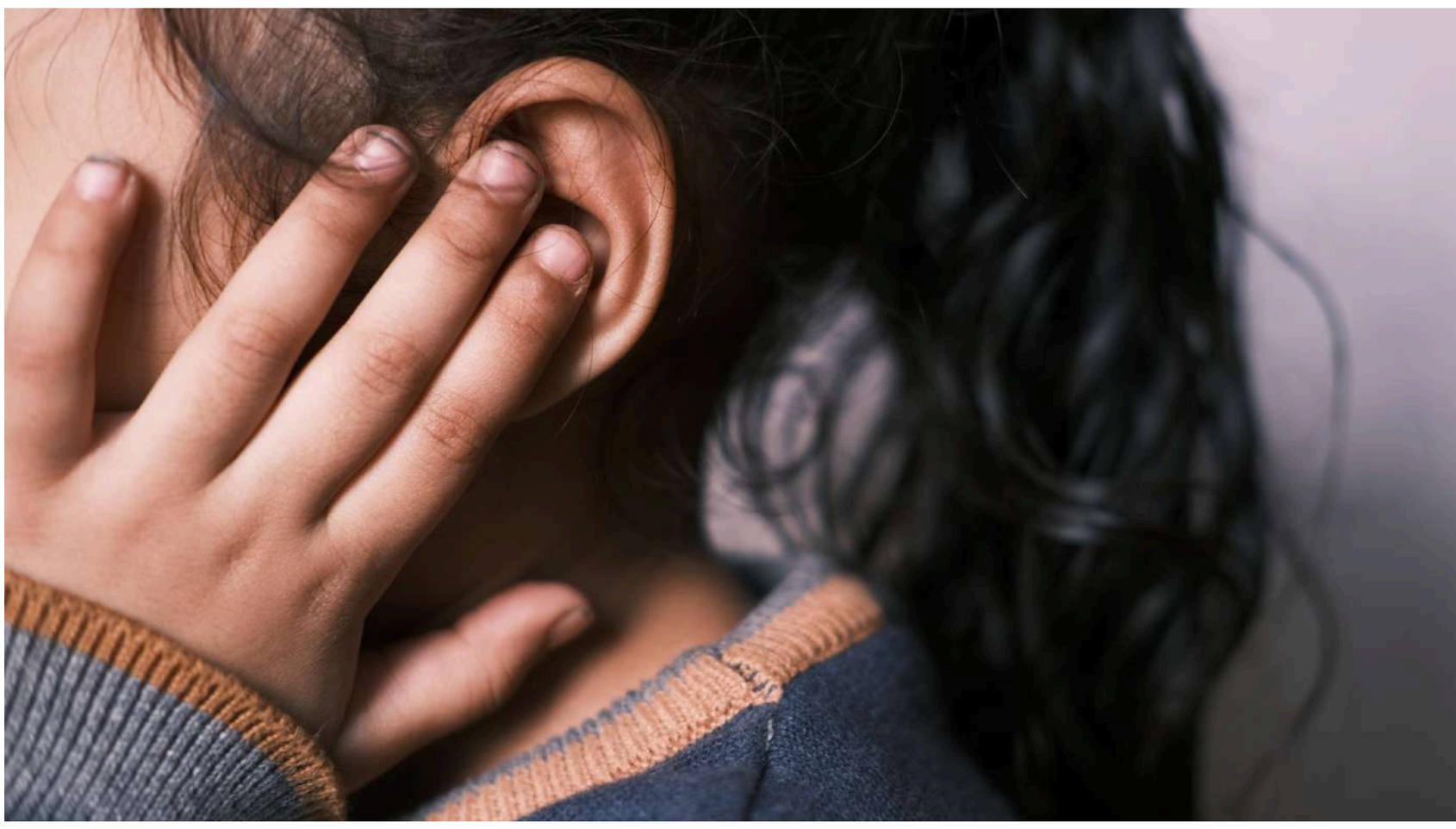
A - Z of Hearing Loss in Children

By Nadirah Mannan
3 March 2025

Let's delve into the A to Z of childhood hearing loss, covering key aspects in a nutshell.



A
Aural Habilitation

Aural rehabilitation is a term referring to teaching hearing-impaired people to adjust or compensate for their hearing loss using spoken communication skills.

Babies or young children with hearing loss do not have the skills to begin with.

Hence, habilitation, rather than rehabilitation, is more apt, whereby the children require intensive training in learning to listen using hearing devices, as guided by their audiologist and speech-language therapist.

One of the earliest sounds they will hear are their caregivers' voices and sounds at home. They will first learn to pay attention to these sounds, and then attach meanings to these sounds, which subsequently leads to their development of spoken language.

B
Brain Plasticity

The brain is able to reorganise its neural pathways whenever new information or memory is received. This process is called the neuroplasticity of the brain, and it takes place throughout a lifetime. However, different types of plasticity are more dominant at certain periods of life.

The central auditory system is the part of the brain that is responsible for hearing and speech, and is highly dependent on exposure to sounds early on in life.

In fact, the period from birth to three years is the critical window for auditory development and language learning. Research has shown that without sound stimulation, the central auditory system does not develop normally, which is a risk for hearing-impaired children if they do not receive early intervention.

This consequently leads to speech and language delay. Therefore, consistent sound and listening stimulation during this critical period is important for the development of speech and language.

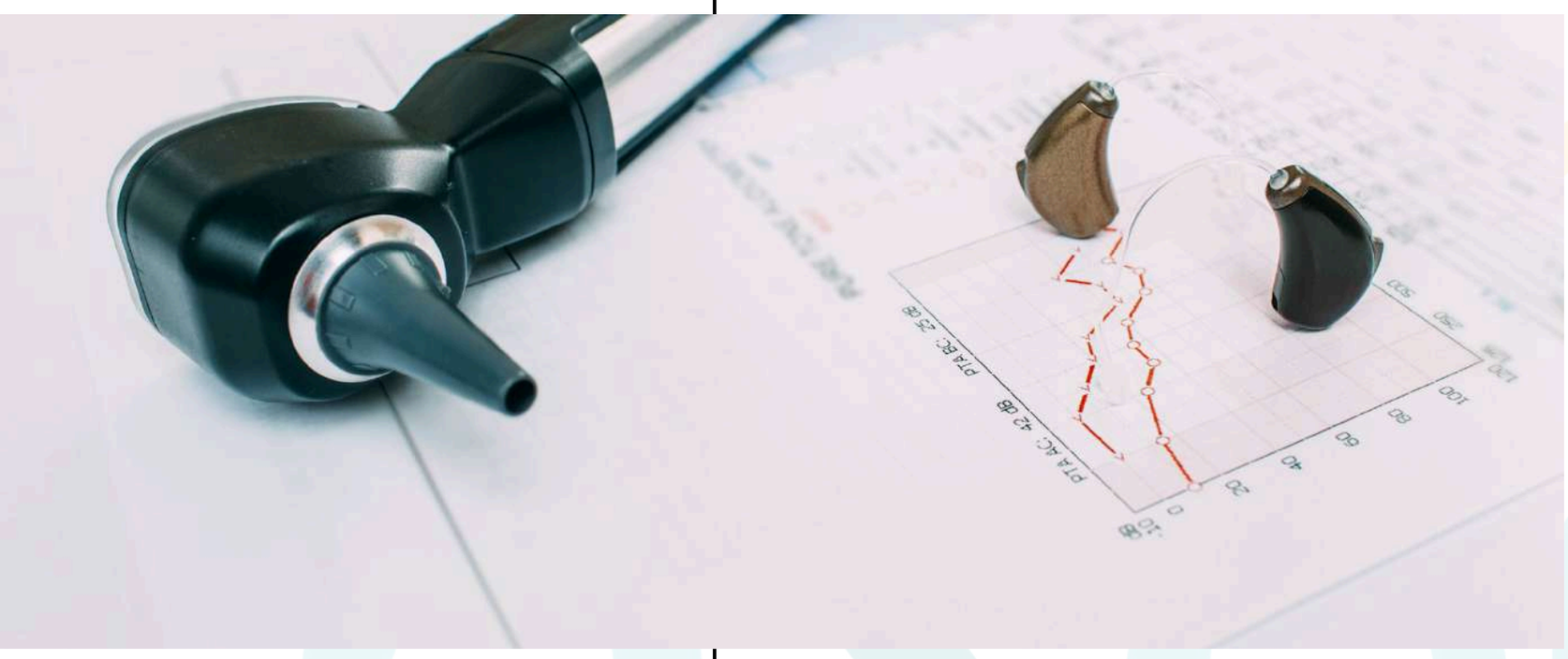
C

Causes of hearing loss

The causes of hearing loss can be congenital or acquired.

Congenital means the hearing loss is present at, or acquired soon after, birth. Causes may be infections during pregnancy (e.g. maternal rubella [German measles], cytomegalovirus, herpes simplex virus and syphilis; prematurity; low birth weight [less than 1.5kg]; birth asphyxia [lack of oxygen at the time of birth]; birth injuries; and use of certain drugs during pregnancy (e.g. aminoglycosides, cytotoxic drugs and diuretics).

Acquired hearing loss is hearing loss that is present after birth, at any time of an individual's life. Among its causes are infectious diseases (e.g. meningitis, measles and mumps); chronic ear infections; wax or foreign bodies blocking the ear canal; fluid in the ear (otitis media); use of certain medication (e.g. for the treatment of neonatal infections, cancers); injury to the head or ear; excessive noise; and ageing.



D

Developmental Checklist

Like physical developmental milestones, a child's hearing and talking development can also be tracked using a typical hearing and talking developmental checklist.

By monitoring the child's progress according to that checklist, it should serve as a reference for parents and caregivers on signs that they need to look out for in their children.

Visits to the paediatrician or maternal and child healthcare providers are important as these professionals can advise you whether your child is at an appropriate developmental rate.

E

Early Detection and Intervention

The earlier the detection of hearing loss, the earlier the intervention process can start for the child.

Research has shown that children with hearing losses identified by six months of age, who received amplification and habilitation services, have significantly better language development. Early detection and intervention are critical for the development of speech, language and communication skills in children with hearing loss. The term "wait and see" does not apply when it comes to hearing loss in children.

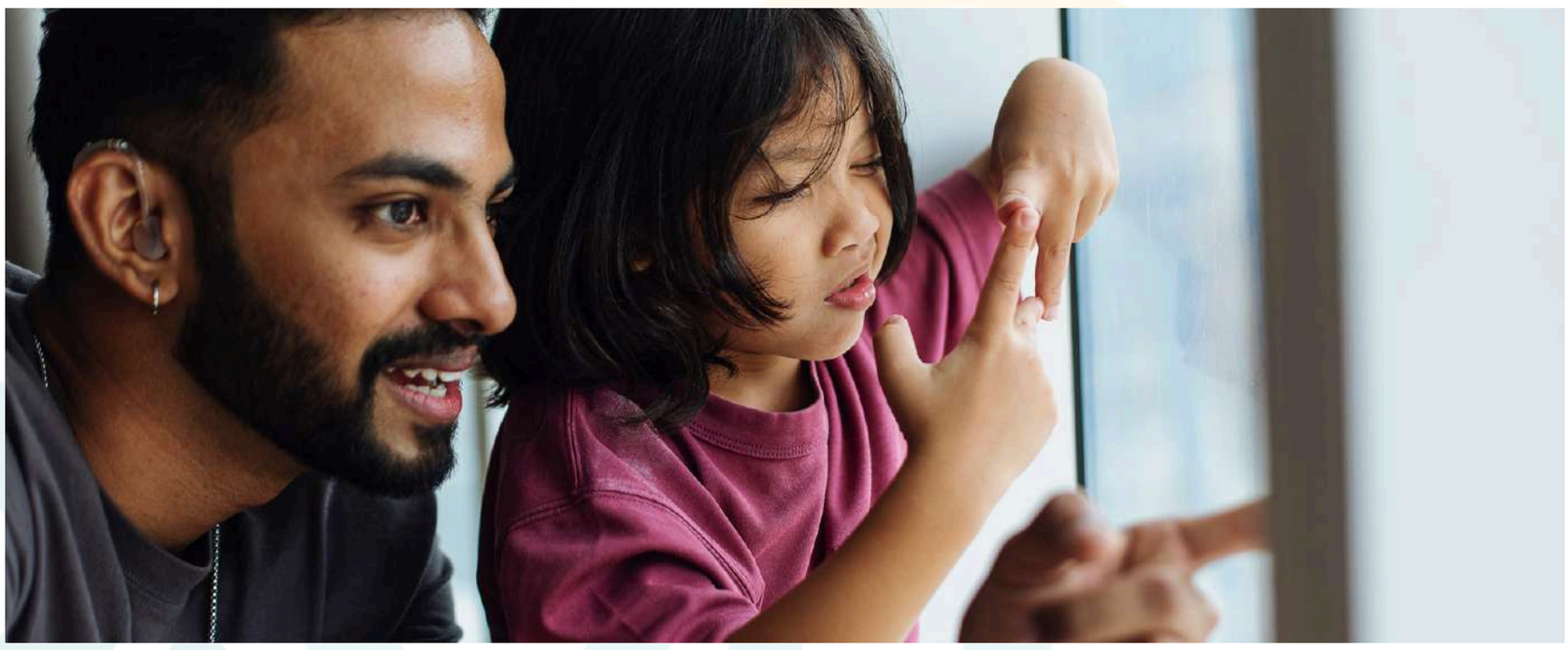
F

Family Support

When a child is diagnosed with hearing loss, the whole family is affected.

Each parent will react and respond differently to the diagnosis, and it is essential that they receive the right support throughout this journey. It may not be easy, but sharing the diagnosis with extended family members and close friends can provide emotional and practical support. Siblings, too, have their own feelings and needs, and they should not be overlooked.

At Axon, we believe in a family-centred approach, ensuring that parents, siblings, and caregivers receive the guidance they need. Our Super Sibling programme offers a dedicated space for brothers and sisters to express their emotions, build resilience, and connect with others who understand their experiences. Additionally, our counselling services provide professional support for families navigating the challenges of raising a child with hearing loss.



G

Genetics

Another cause of hearing loss is through hereditary factors, where the hearing loss may be present at birth or develop later in life. It is believed that genetic factors cause more than 50% of all hearing loss.

Generally, genetic hearing loss is autosomal recessive, where both parents carry the gene that causes hearing loss in their child. Genetic hearing loss can also be autosomal dominant, where only one parent having the gene is enough for the child to have hearing loss.

Among the genetic syndromes in which hearing loss is a symptom are Down Syndrome, Usher Syndrome, Treacher Collins Syndrome, Crouzon Syndrome, Alport Syndrome and Waardenburg Syndrome.

H

Hearing Devices

If hearing loss cannot be treated medically or surgically, hearing devices can help to improve the ability to hear. Hearing devices include hearing aids, cochlear implants and assistive listening devices such as the FM system. A hearing aid is a small, electronic device that amplifies sounds. Hearing aids are programmed specifically to a person's hearing loss.

When a child has a significant hearing loss and does not benefit from the hearing aids, a cochlear implant is considered. A cochlear implant is a device inserted surgically, to provide direct stimulation to the auditory nerve.

There are certain criteria to be met before a person can undergo cochlear implant. A team of specialists including otologists, audiologists and speech-language pathologists will meet to decide on a person's suitability for a cochlear implant.

Assistive listening devices are usually recommended for particular listening environments, such as in a classroom or meeting room. The assistive device helps the hearing aid/cochlear implant user to better hear the speaker, rather than the surrounding environmental noise.

However, hearing devices are not meant to cure the hearing loss. Once the device is turned off or runs out of battery, the wearer will still have deafness and be unable to hear.

I

Impact of Hearing Loss

Hearing loss in children, if unaddressed, can have significant impact on a child's life, such as delayed language development and poor academic performance. Hearing loss will affect a child's ability to communicate with others, causing feelings of loneliness, isolation, and even frustration.

In addition, the World Health Organization estimates that unaddressed hearing loss could cost up to an estimate of US$1 trillion (RM4.45 trillion)+ per year globally.

This includes health sector costs (excluding the cost of hearing devices), costs of educational support, loss of productivity and societal costs.

Thus, it is important to have interventions that can minimize the impact of hearing loss.

J

Jaundice

Hyperbilirubinaemia or jaundice is also one of the causes of hearing loss at birth.

Very high levels of bilirubin in a newborn's blood will cause the bilirubin to cross over the thin layer of tissues between the brain and the blood (the blood-brain barrier). The bilirubin can damage the brain (including the part related to hearing) of a newborn infant. The severity of hearing loss can vary from mild to significant and permanent hearing loss in the baby.

Hence, the treatment of jaundice cannot be taken lightly and bilirubin levels in babies who have jaundice need to be monitored.

K

Keep the Volume Down

Did you know one in two young people are at risk of hearing loss due to unsafe listening?

The world can be a noisy place and listening to loud sounds can cause a permanent noise-induced hearing loss. In line with World Hearing Day 2025 theme, "Changing Mindsets: Empower Yourself", safe listening practices are encouraged to prevent hearing loss. The louder you listen, the shorter the time for listening safely. By turning the volume down to no more than 60% of maximum or protecting your ears using well-fitted, and noise cancelling headphones, you can listen for longer without harming your hearing.

L

Listening Hierarchy

Learning to listen is not automatic.

There are four stages in the listening hierarchy a child must go through to develop listening skills.

The first is detection – when the child needs to hear the presence or absence of sound. The child should be introduced to many new sound experiences every day so that he/she knows that the world is noisy, yet full of interesting sounds.

Next is discrimination – the child needs to know whether the sounds heard are the same or different.

This is followed by identification – the child should correctly repeat what is heard or understand what each sound means.

The final stage is comprehension – the child can understand connected speech using hearing alone, such as following directions, asking and answering questions, and participating in conversations.

Even if a child has reached the level of comprehension, sometimes, a revisit to detection, discrimination and identification is still required. This is just an overview of what the listening hierarchy is like.

M

Myths on Hearing Loss

Myth: Only old people have hearing loss as it is a sign of aging.
Fact: Hearing loss can happen to any age group, either from birth or acquired.

Myth: All deaf children use sign language.
Fact: With early diagnosis and intervention, a hearing-impaired child should be able to use spoken language.

Myth: Deaf children can't enjoy music.
Fact: With the help of hearing devices, children with hearing loss can appreciate music like anyone else.

Myth: Hearing aids will make everything sound loud.
Fact: Hearing aids are indeed amplifiers, but current digital technology ensures that only the appropriate amount of amplification suited to the hearing levels is given.

N

Newborn Hearing Screening

Do you know that one to two in 1,000 babies* are born with hearing loss? Hearing loss can be identified from birth. In Malaysia, major public and private hospitals implement universal newborn hearing screening using an automated diagnostic device.

It is a simple test that runs for only a few minutes, usually before the baby is discharged from the hospital.

When a baby does not pass the initial screening, this does not necessarily mean that the baby has hearing loss. A follow-up test is required to confirm the presence of hearing loss.
Newborn hearing screening is important so that we can provide early intervention as required.

O

Otitis Media (Middle Ear Infections)

Otitis media is a condition where there is fluid in the ear. It can occur with or without inflammation of the ears. It is quite common in younger children as their middle ear structures are not matured yet.

Some other risk factors include being in childcare; being exposed to second-hand smoke; and having Down syndrome, as well as craniofacial anomalies such as cleft palate.

The build-up of fluid in the ear typically causes temporary hearing loss, and the hearing goes back to normal once the fluid clears up.

As the condition tends to happen in the early years of life, it can affect the speech and language development of a child. Hence, it is important to look out for the signs and symptoms that indicate the presence of hearing loss.

P

Parent Support Groups

Although professionals in the area of hearing loss are ever ready to help families with hearing- impaired children, it is not the same as talking to another family who is living with a child with hearing loss.

There are not many parent support groups in Malaysia, but the few that exists are proactive and supportive.

HEAR ME is one of them, initiated by parents with hearing-impaired children. For more details on HEAR ME, log on to www.hearme.my. Another option using sign language as the communication method is YMCA KL through their advocacy group, Pusat Majudiri 'Y' (PMY) for the Deaf. Both groups are based in the Klang Valley, and they serve as a great advocate for families and individuals with hearing loss, as well as for networking purposes.

Axon Superfamilies Network is also an initiative by Axon Children's Centre to support this community.

Q

Questions

Once your child is diagnosed with hearing loss, you will have so many questions – and it is okay. Ask those questions and never stop asking.

Nobody is born knowing what to do in every situation. Questions lead to answers. Answers lead to actions. Actions lead to results.

Just make sure you ask the right people! Audiologists, speech-language therapists and ENT specialists are among the professionals who are equipped with the specialised knowledge to help answer your questions.

R

Resource Materials

The internet is great as a point of reference as there is abundant information and resource materials about hearing loss.

The American Speech and Hearing Association and World Health Organization have good information for the public to better understand hearing loss. You should check out hearing devices websites too, because they may contain interactive materials for children.

If there is any uncertainty, consult a professional. You can also contact us at Axon Children's Centre so we can direct you to the right platform.

S

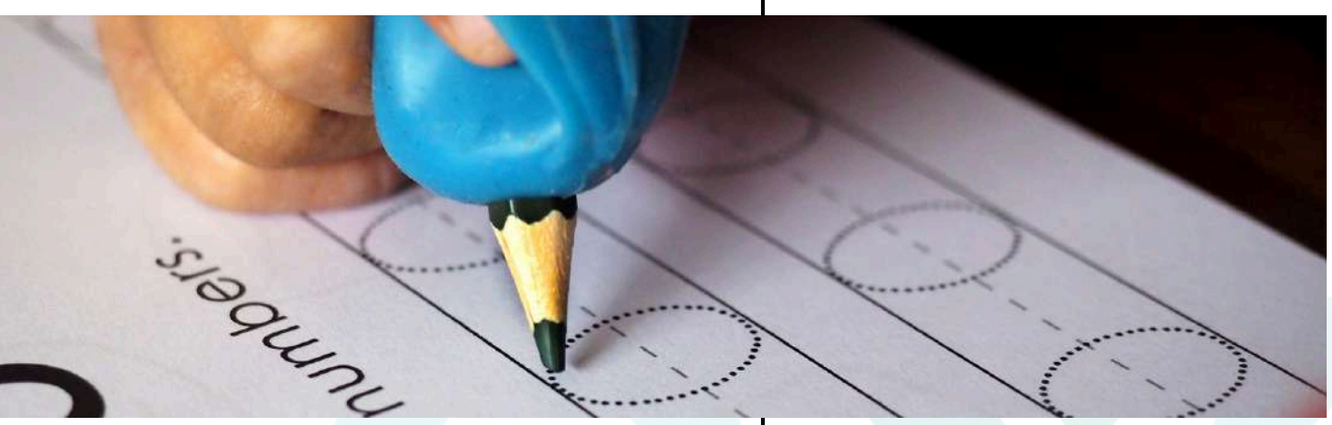
School Participation

Hearing loss in children can greatly impact their ability to participate in school activities, affecting academic performance, social interactions, and overall development.

Children with hearing difficulties often struggle with speech and language acquisition, making it harder for them to understand lessons, express themselves, and engage in discussions. If left unaddressed, they may develop these skills at a slower pace than their peers. Research indicates that children with even mild hearing loss are four times more likely to face academic challenges compared to those with normal hearing.

Additionally, background noise in classrooms can reduce speech comprehension by up to 50% for children with hearing impairments. Many also experience listening fatigue, making it difficult to concentrate and stay engaged in learning.

Providing appropriate support is essential to ensuring these children can fully participate in school and reach their potential.



T

Tests

There are a variety of tests that can be performed to identify hearing loss in children. Generally, there are two types of tests: objective and subjective.

Hearing loss can be detected at birth through newborn hearing screening. Due to the very young age, a child is unable to provide a response by showing a certain behaviour, such as pressing the button when he/she hears a sound. Therefore, objective hearing tests are used, such as Auditory Brainstem Response (ABR) test or Otoacoustic Emissions (OAE) test.

Both tests do not require a response from the person being tested.
ABR measures the hearing pathway up to the lower part of the brain, whilst the OAE assesses the cochlear function.

Conversely, puretone audiometry is a subjective measure of hearing where a response is required from the person being tested, in a quiet room. Results are recorded in a hearing chart, known as the audiogram.

Infants as young as eight months old up to two years old will be trained to turn towards a sound source in Visual Reinforcement Audiometry.
Older children can be tested by Play Audiometry, where they are trained to “play” or perform a task whenever they hear a sound.

U

Unilateral Hearing Loss (UHL)

When a person has normal hearing in one ear and hearing loss in the other ear, it is known as unilateral hearing loss or single-sided deafness.

It is actually a hearing loss that can easily be missed, as the person still has one ear with functional hearing. In fact, for children with UHL, some can develop speech and language, but may have speech delay, and face difficulties in overall communication, as well as in school.

Hence, it is important to monitor the child's speech and language development.

It is also important to monitor the child's hearing, especially in the good ear, to ensure that their hearing does not worsen over time. Depending on the type of hearing loss and the communication needs of the child, he/she may need to use hearing devices (e.g. hearing aid or assistive listening device) to help him/her to hear better. Like any other hearing loss, consult the audiologist on the best management plans for the child.

V

Vestibular (Balance)

The ears are not only responsible for hearing, but they are also important for balance. In the inner part of the ear, there are semicircular canals that contain fluid and sensors, which detect movement of the head. They are all part of the balance or vestibular system, along with the eyes and sensory systems of the body (e.g. muscles and joints).

Dizziness or vertigo are indications that your vestibular system may be compromised, hence it is imperative that you undergo a vestibular/balance assessment to find the underlying cause.

W

When to See an Audiologist

Hearing loss is an invisible impairment, and it can go unnoticed and unmanaged if you do not know its signs and symptoms.

For babies, some of the signs of hearing loss are: not being startled by loud sounds; only responding to another's voice when he/she sees the person (visual input); not babbling (making "da-da-da" or "ma-ma-ma" sounds) a lot at the age of eight to nine months; and not speaking single words by the age of 18 months.

A child with mild, mild-to-moderate or moderate level of hearing loss may show the following signs: slow in learning to talk; responding inappropriately; talking loudly; asking others to repeat themselves frequently; and increasing the volume of the radio/television. If you notice your child showing such behaviour, bring the child to see a doctor so that a referral can be made to see an audiologist.

X

Seek eXperts Consultation

Effective management of a child with hearing loss involves a multidisciplinary team of professionals, namely otologists, paediatricians, audiologists and speech language- pathologists. Sometimes, other professionals are involved too, such as occupational therapists to address the behaviour of the child, and psychologists or a family counsellor to address the emotional needs of the family.

The professionals work hand-in-hand with the families to help their children with hearing loss achieve their full potential. To this end, the most important team members are the parents and families themselves, who should play a proactive role, supported by their various professionals.

At Axon Children's Centre, we emphasize on multidisciplinary approach and have a wide range of services available to support the child's development.

Y

YOU Can Help!

Know someone who has hearing loss? After reading all this information, you should know that YOU can help too!

Get them to see a professional, support them in their time of need or just be a shoulder to lean on.

Every little bit of help counts, and sometimes, it does not even take much of an effort.

Z

zzZ – Sleep

Parenting a child with hearing loss—or experiencing hearing loss as a child—can be overwhelming. With so much to manage, it's easy to become consumed by responsibilities and forget to care for yourself. This can lead to stress buildup, emotional exhaustion, and even behavioral challenges.

Taking time for yourself is essential. Prioritize rest and ensure you're getting enough sleep—a well-rested body and mind contribute to a more positive and productive environment for

Nadirah Mannan is a **consultant audiologist** (MAHPC(AUD)00673) at **Axon Children's Centre.** Axon is a one-stop child development centre providing multidisciplinary services for child development, including but not limited to Child Psychiatry, Clinical Psychology, Occupational Therapy, Speech Therapy, Physiotherapy, Dietetics, Reading Intervention, and Audiology services in Cyberjaya.