

Developmental Disorders in Children

Hearing Impairment (HI)



Child Assessment Service

Department of Health

The Government of the Hong Kong Special Administrative Region

www.dhcas.gov.hk



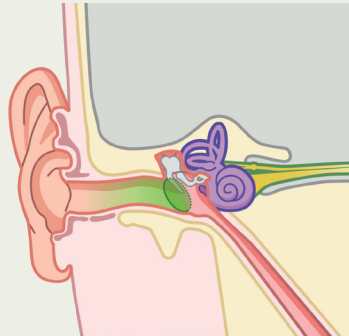
01 What is **HI**?



Hearing impairment is defined when an ear can only receive sound of more than 25 decibels.

Hearing impairment can be divided into different levels of severity:

Mild
Moderate
Moderately severe
Severe
and Profound.



Hearing impairment is considered 'significant' when the degree of impairment is in moderate grade or worse in the better ear.

The nature of hearing impairment can be conductive, sensorineural or mixed. Conductive hearing impairment is caused by problems in the conduction of sounds in the outer and/or middle ear.

Sensorineural hearing impairment involves impairment found in the inner ear and/or auditory nerves.

Mixed hearing impairment includes both conductive and sensorineural components. Hearing impairment can be monaural or binaural. The severity and cause of hearing impairment vary in different individuals. Treatment methods are also different.



02 What causes **HI**?



Genetic causes account for roughly 50-60% of children with hearing impairment.

Many non-genetic factors can also lead to hearing impairment during infancy and childhood, such as fetal infection during pregnancy, adverse events during delivery, severe neonatal jaundice, meningitis and brain trauma etc.





03 How does HI affect children?

Auditory function: The impact of hearing impairment follows the degree of hearing loss.

- Children with mild hearing impairment demonstrate difficulty in perceiving faint sound and understanding soft-spoken speech.
- Children with moderate hearing impairment experience difficulty in perceiving conversations, especially in a noisy environment.
- Children with severe hearing impairment have obvious difficulties in receiving speech and other sounds.
- Children with profound hearing impairment generally show no response to environmental sound and they cannot rely on their auditory senses as the primary mode of communication.

Language development: Hearing impairment will affect children in different stages of language development. Their language development depends on the severity and time of the onset of hearing impairment. Their language comprehension and expression skills may be weaker than their peers, and they may have problems in articulation. During infancy, due to the lack of clear auditory feedback, the frequency and variety of sounds they produce will reduce gradually.

They would have their first meaningful word delayed, acquire lesser vocabularies and have a weaker ability to form sentences.



Children with hearing impairment may limit their communication and interactions with others, thus hampering their relationship with caregivers and friends. As they grow up, behavioural and emotional problems may appear due to ineffective communication with peers and lower self-esteem. Motor coordination problems are noted in some children with severe to profound hearing impairment.

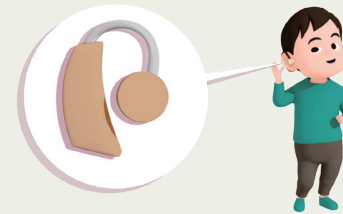


04 How to help children with HI?

Early diagnosis, treatment and training are most important.

Treatment of the underlying cause is possible in some conditions, for example, earwax removal, antibiotics treatment for otitis media and grommet insertion for middle ear effusion.

For hearing impairment due to genetic or syndromal conditions, genetic counseling and related medical treatment are required.



Research evidence has shown the benefit of early hearing aid fitting on the language development of these children. Binaural use of hearing aids is encouraged for better sound perception and sound localization. For children with severe to profound sensorineural hearing loss who show limited or no benefit from hearing aids, physicians may recommend cochlear implantation or other surgery.

Auditory training aims to optimize children's residual hearing through early amplification, provision of favorable acoustic environment and use of effective and comprehensive habilitation programs so as to enhance their auditory awareness and speech discrimination ability.

Hearing impairment can affect children's language development. Therefore, they need to receive training on their language and communication. The earlier the commencement of training, the better will be the outcome.





Referral and Management

Some children may not attain a satisfactory level of oral language development despite they have been fitted with hearing aids. In these cases, therapists may need to consider other modes of communication.

In Hong Kong, most of the aural rehabilitation programs use total communication or sign-oral language bilingualism as their basic concept.

It is important to provide psychological counseling to parents at the time of diagnosis and to teach them how to communicate with their children.



By encouraging children to wear their hearing aids, providing language training, participating in parent support groups and attending regular medical reviews, these can effectively help the children with hearing impairment.



Initial Check-up

Maternal and Child Health Centres / Student Health Service /
Paediatricians / General Practitioners



Further Assessment

Child Assessment Service



Ear, Nose
and Throat Specialty



Training and Treatment

Professional Services

- Ear, Nose and Throat Specialty
- Speech Therapy

Preschool Training Services

- Early Education and Training Centre
- On-site Preschool Rehabilitation Service
- Integrated Programme in KG-cum-CCC
- Special Child Care Centres
- Audiological Service of Education Bureau Services Centres

Services for School-aged Children

- Learning Support and Accommodation
- Enhanced Support Services for Students with Hearing Impairment
- Special School



Related **Websites**

**Education Bureau: Integrated Education and
Special Education Information Online**

<https://sense.edb.gov.hk/en/index.html>

Centre for Sign Linguistics and Deaf Studies

www.cslds.org/v3/?lang=en

Hong Kong Education City : Inclusion Pavilion

www.hkedcity.net/sen

Hong Kong Parents Association for the Hearing Impaired

www.facebook.com/hkpahi

Some of the websites only have Chinese version



FOR more
information



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