



Conductive hearing loss in the classroom

GLUE EAR



Contents

What is a conductive hearing loss?

How is a hearing loss measured?

What are the characteristics of a conductive hearing loss?

What is the effect of the conductive hearing loss on hearing and understanding speech and other sounds?

What can be done in the classroom to support the child with a conductive hearing loss?

How can a teacher identify a child with a conductive hearing loss?

What is the treatment for a conductive hearing loss?

There are good reasons why teachers need to pay attention to conductive hearing loss!

Middle ear disease is the most frequently diagnosed illness in young children, particularly between birth and three years of age. Family doctors report that the second most frequent reason that parents consult a doctor is middle ear infections and/or glue ear.

These are the commonest cause of acquired hearing loss in childhood.

Research has shown that two thirds of all children have at least one ear infection by age three and one third have three or more ear infections. It is estimated that about 6% of two year olds have bilateral hearing impairment owing to glue ear or to ear infections which persist for three months or longer.

In the 2-5 year age range 15-20% of children will have glue ear at any given time. The prevalence in children 7 years and older can be as much as 5%.

A conductive hearing loss is the most common kind of hearing loss in childhood

The main risk factors are:

- Age: 0 to 7 years old
- More common in boys
- Siblings who have glue ear
- The prevalence is higher in Winter and Spring
- Children who are bottle fed
- Children who attend Day Care centres
- Parental smoking



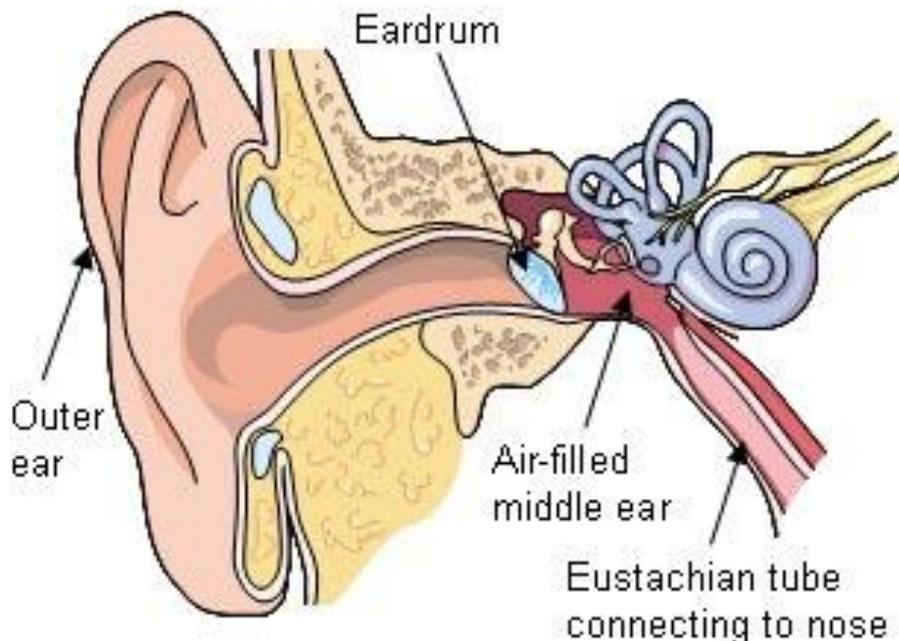
What is a conductive hearing loss?

A conductive hearing loss occurs when sound is prevented from moving through the outer and/or middle ear system to the auditory nerve in the inner ear. The middle ear should be an air-filled cavity allowing the ossicles to vibrate and “conduct” sound to the inner ear.

A conductive hearing loss is particularly prevalent in young children, largely because of their age and the developing anatomical structures. However, it can persist throughout the primary school years and in some children even into adolescence.

It is estimated that at any one time 15% to 20% of children between the ages of 2 and 5 have a compromised middle ear “Glue Ear” and resulting conductive hearing loss. “This condition affects 1 in 4 children” - The NDCS (National Deaf Children’s Society)

The Normal Ear



Some of the causes of a conductive hearing loss may be:

| Outer Ear | Middle Ear |
|---|--|
| Impacted wax in the ear canal Foreign object in the ear canal Damage to the ear drum Absent or malformed ear | Middle ear infections (acute otitis media) <u>Glue ear</u> (otitis media with effusion/serous otitis media) Damage to the bones in the middle ear Malformations of the middle ear |

Many young children get ear infections and/or glue ear because:

- Their immune systems are still developing
- The Eustachian tube is in a different position to adults which means that children are more likely to get ear infections. In children, the Eustachian tube is more horizontal, while in adults it is more vertical. This positioning also makes it more difficult for fluid that might build up in the middle ear cavity to drain away.

How is a hearing loss measured?

The child will be examined by a doctor and/or specialist and tested by an audiologist using specific kinds of tests depending on the child's age.

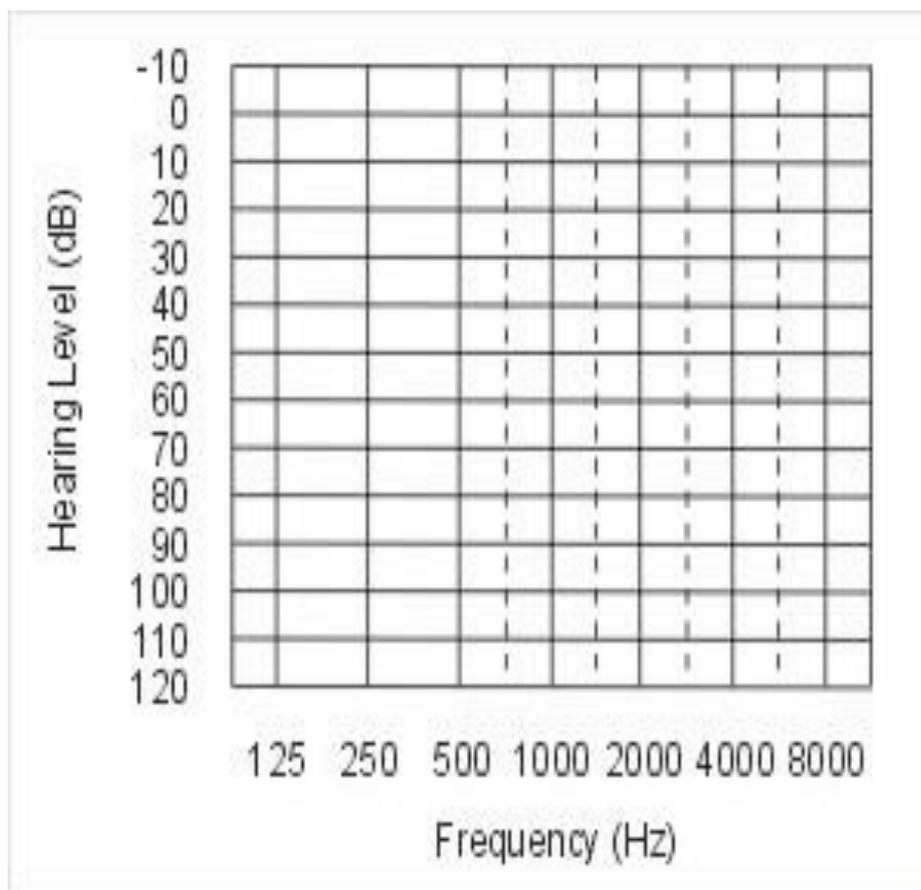
These tests tell us about the specific type of hearing loss and its severity.

Two tests are most commonly used with children.

One of these tests the child's response to sound is plotted on a graph called an **audiogram** and provides information related to the frequency (pitch) and intensity levels (loudness).

The other standard test provides specific information about the status of the child's middle ear in terms of how well the ear drum is working and what is present in the middle ear cavity. This is called tympanometry.

An Audiogram



What are the characteristics of a conductive hearing loss?

When hearing is tested a normal **threshold of hearing (when sound is just heard)** is between **0 and 20dBs**.

Children with conductive hearing losses may have **thresholds of hearing** between **25db and 65db**. The hearing loss is within the **mild to moderate** range, but will have an impact on learning.

The loss may be either unilateral (affecting one ear) or bilateral (affecting both ears), but is most commonly **bilateral**.

A conductive hearing loss can affect all frequencies but typically affects **lower frequencies** more severely.

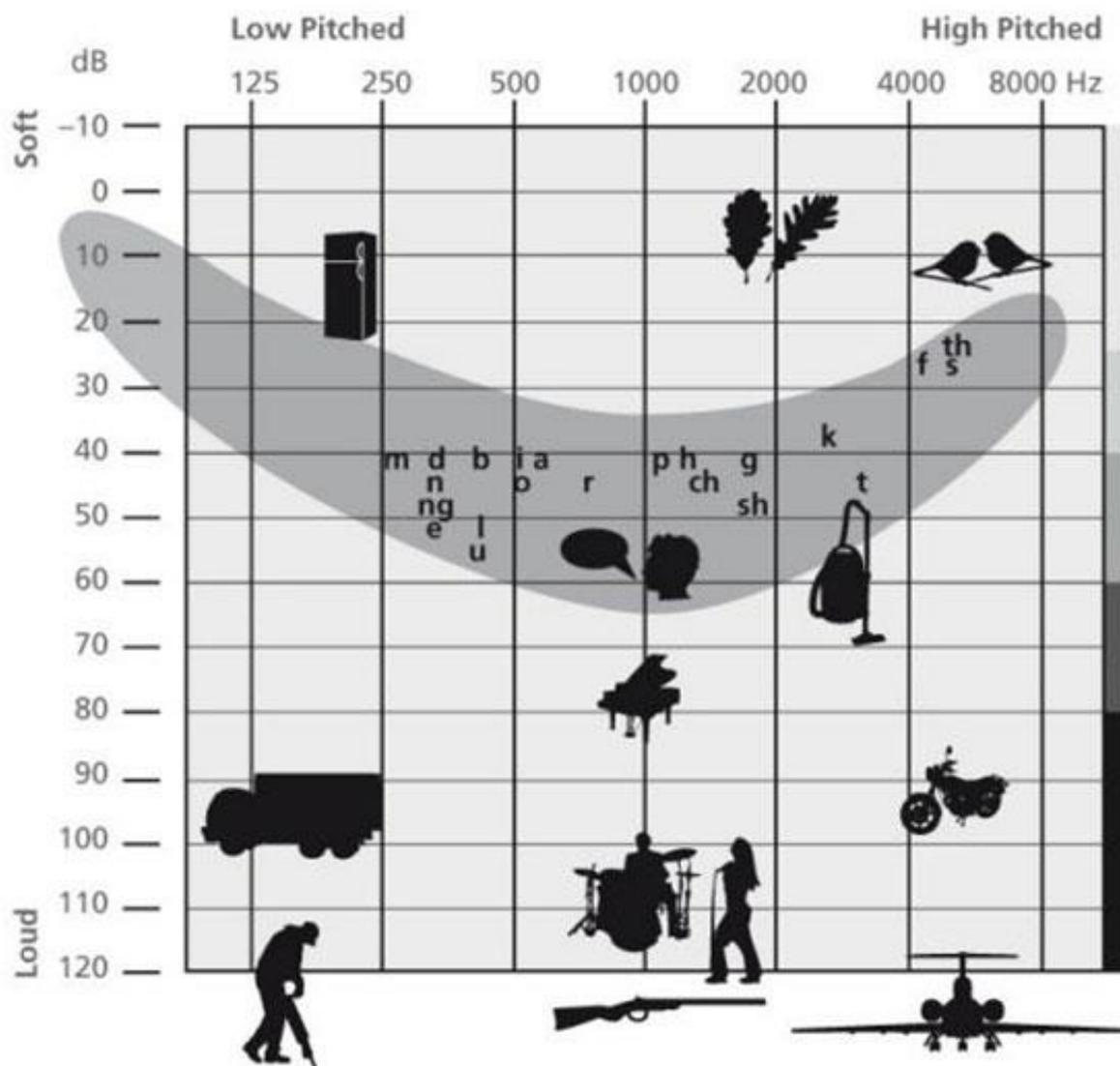
In human speech the **vowels** are in the low frequency range, and carry specific speech information which may be lost to the child with a hearing loss.

A conductive hearing loss is also often **fluctuating**, which means that the child's ability to hear clearly may change from day to day and week to week. It may also change from ear to ear.

The particular hearing difficulty in a conductive hearing loss relates to the **diminished loudness of sounds**, and if the hearing loss is significant, certain sounds may not be heard at all.

Human conversational speech and environmental sounds can be plotted on an audiogram. The area into which speech sounds fall is called the 'speech banana.' This shows the characteristics in terms of the pitch and loudness of different speech sounds, when two people are talking at normal conversational level.

Audiogram - Speech Banana



If we look at a 'typical' moderate conductive hearing loss in relation to the speech banana (the banana shaped band on the audiogram) then the child WILL HAVE TROUBLE HEARING and is likely to mishear many speech sounds.

| Levels of deafness: | |
|---------------------|-----------|
| Mild | 24 – 40dB |
| Moderate | 41 – 70dB |
| Severe | 71 – 95dB |
| Profound | 95+ dB |

How does a conductive hearing loss affect a child?

There are many general effects of this kind of hearing loss on the child.

As it is most common in the earlier years of life, it has particular significance for the child's **speech and language development**. If the hearing loss persists or recurs, the child will miss out on important language learning opportunities over a crucial period of time in their life.

If it persists into primary school, the child will miss out both on further language learning opportunities as well as important learning opportunities in the classroom, which in turn may **affect academic progress**.

As the child has to put more energy into **listening and attention**, it becomes much harder work for them when compared to a child with typical hearing.

This increased effort in turn may cause **changes in behaviour** such as tiredness and frustration, irritability and the need to be alone. Life at home and in the classroom can become more challenging both for the child and their parents/carers and, in school, the teacher!

Hearing loss can also impact on the child's **social life**, as conversations and social interaction with peers will be more difficult and effortful. The child may react by becoming withdrawn, sometimes preferring to play alone, or to act out frustration towards other children.



You may notice the following in the child:

- Difficulty maintaining concentration, e.g. during whole class lessons/discussions.
- Poor response to work involving speaking and/or listening in whole class and/or small group settings
- Specific difficulty with phonics and literacy work involving paying close attention to sounds and working with sounds
- Greater difficulty with activities where visual support is not available.
- The child may be continually unsure of what to do when given instructions, and may take their cue from other children.

What can I do to help the child with a conductive hearing loss in the classroom?

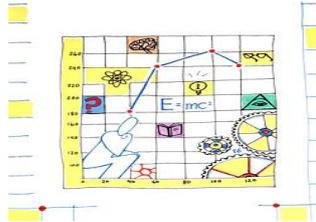
- ✓ Try to have **quiet times** and **quiet places** in the classroom.
- ✓ **Keep background noise as low as possible** – noise will mask a speaker's voice. This includes classroom chatter and noise from outside the class room, e.g. corridors. **KEEP THE CLASSROOM DOOR SHUT**
- ✓ When holding group discussions, **seat the child where they can see you AND as many of the other children in the class as possible**. This will make it easier for the child to follow the whole conversation.



- ✓ Make sure that you **have the child's attention** before you start talking. If possible get down to the child's eye level.
- ✓ **Speak clearly and at your normal pace**. Shouting, whispering and exaggerating your lip movements distorts the sound and therefore the message.
- ✓ **Make sure you are always facing the child when you are talking** either to that child or to the whole group. Don't talk while your back is to the child, e.g. when you are writing something on the board, when you are walking away from the child, when you are busy writing something in their book, etc.
- ✓ **Make sure your face is clearly illuminated when you are talking to the child**. Don't stand with your back to a light source. This casts your face in shadow, which makes it impossible for the child to access the visual clues that accompany your speech, e.g. facial expression, lip and mouth movements, etc.



- ✓ **Give time for processing information or instructions** – try to ‘chunk’ sentences and instructions.
- ✓ **Foster good turn taking** – include the pupil in group discussions by making sure one person talks at a time and mark the speaker, e.g. name the speaker. Repeat or paraphrase what a child has said, as children’s voices are often harder to hear than adults’ voices.
- ✓ **Use visual aids wherever possible** to complement and illustrate what you are saying



- ✓ When giving instructions or asking questions in a whole class/large group situation, **check with the child that they have heard and understood** what you have said and/or asked.

If the child asks for repetition, the following is helpful:

Repeat...

the whole message, not just bits of it

Say it again...

but differently, change around the word order, use different words

Simplify...

use more concrete words and basic sentences.

Offer clear explanations...

giving more information and a context

Check...

that the child has heard and understood

Trouble Shooting

| Child's difficulty | What to do about it |
|---|---|
| <p style="text-align: center;">Difficulty maintaining concentration for example during whole class lessons/discussions</p> | <p style="text-align: center;">Seating the child appropriately</p> <p style="text-align: center;">Do frequent comprehension 'check-ins' with the child</p> <p style="text-align: center;">Provide visual support</p> |
| <p style="text-align: center;">Poor response to work involving speaking and/or listening in whole class and/or small group settings</p> | <p style="text-align: center;">Seat the child close to you</p> <p style="text-align: center;">Provide lots of repetition</p> <p style="text-align: center;">Encourage the child to be as active as possible, e.g. answering questions</p> |
| <p style="text-align: center;">Specific difficulty with phonics and literacy work involving paying close attention to and working with sounds</p> | <p style="text-align: center;">USE VISUAL AIDS</p> <p style="text-align: center;">e.g.</p> <p style="text-align: center;">moveable letters for building words</p> <p style="text-align: center;">colour code vowels and consonants</p> <p style="text-align: center;">colour in chunks in words, e.g. gate, attention, wonderful</p> |
| <p style="text-align: center;">The child has greater difficulty in activities where they do not have visual support available, for example pictures and charts</p> | <p style="text-align: center;">Provide pictures about the topic</p> <p style="text-align: center;">Get the child to draw their own pictures about the topic</p> <p style="text-align: center;">Have charts and tables of regularly used information available on the child's desk for personal use, e.g. times tables, spelling charts, number grids, etc.</p> |

How can I identify a child with a conductive hearing loss?

Teachers and TAs are often in an ideal position to identify a child with a conductive hearing loss. As you work closely with the child every day, you can observe behaviour and response to work and to other children in detail as this occurs and as it changes over time.

As glue ear may not cause the child direct physical discomfort, it is often easy to think that the child is being stubborn, lazy or just plain rude.

One of the first things that should be done for a child who has behaviour difficulties is to have a routine hearing check.

If a child has glue ear, you may notice the following in combination on any given day:

- Constant demand for repetition.
- Difficulty hearing and therefore paying attention to and/or following instructions.
- Poor attention during classroom activities involving speaking and listening.
- Social withdrawal or difficulty interacting with friends.
- A slow-down in academic progress or a decline in academic performance.

In addition, if a child has an ear infection (acute otitis media) you may notice the following in combination on any given day:

- The child may appear to be generally unwell.
- The child is flushed, may have a reddened ear(s) and may rub the ear(s).
- The child may have a cold and/or a cough and a runny nose.
- The child may be irritable and moody or tearful and unable to focus on work.



What is the treatment for a conductive hearing loss?

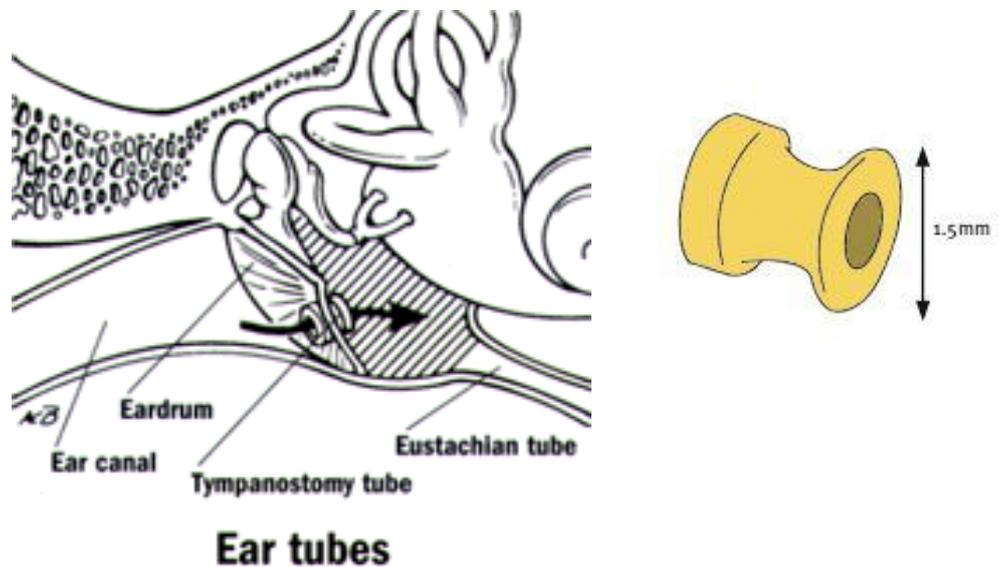
Most episodes of glue ear are short (under 3 months). About half of affected ears will resolve spontaneously after 3 months, 75% by six months, and only 5% of children will have glue ear for a year or more.

Conductive hearing losses due to middle ear infection or glue ear are treatable. Treatment takes various forms depending on the type and degree of hearing loss and its persistence.

Acute otitis media, or an infection of the middle ear, is usually successfully treated with **antibiotics**.

Even though in the majority of children, glue ear improves spontaneously, **children need to be carefully monitored during the time that the glue ear is present and for a period after** to ensure that it has resolved and is not affecting the child's performance in school.

In some children the condition persists for longer and can also recur. In this case treatment is required. One treatment approach is **surgical intervention** with the insertion of grommets into the ear drum. Grommets/tympanostomy/ear tubes are little tubes which help drain the fluid that has accumulated in the middle ear cavity and equalise the pressure between the middle ear and the external atmosphere.



Osteopathy and Cranial Massage is also sometimes an alternative treatment of choice to move the fluid in the middle ear down the Eustachian tubes.

If the condition persists over any length of time, bone conduction **hearing aids** may be prescribed for the child. This is because the child is missing out on important speech and language learning and academic opportunities while the glue ear is present.

If you require any further support please contact our office or one of our Advisory Teachers.

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