



Primary schoolchildren waiting for an ear examination. INDIA

SHELLY CHADHA

Ear and hearing health in schools



Siân Tesni
CBM's Senior Advisor
for Education,
United Kingdom

From the moment we are born, we begin communicating with significant people in our lives. Most children learn speech and language through listening and mimicking. For others, who are born deaf or develop deafness early in life, communication begins through vision, mimicking gestures, facial expression and signs. Whichever way we learn our communication, having healthy ears is important to our development and learning – not only from birth, but throughout our school years. A temporary hearing loss due to ear disease, for example, or an unidentified progressive or pre-existing hearing loss, will have an impact on a child's academic achievements and behaviour at school, and therefore on their future.

Many early childhood educators and regular teachers have little information on how to either identify the early signs of hearing difficulty and ear disease or include students who are deaf or hard of hearing in a regular setting. They may feel overwhelmed by the thought of implementing such interventions. Ear and hearing care workers therefore have an important role to play in helping school staff contribute to improving ear and hearing health among schoolchildren.

Collaborating with school staff for better ear and hearing health

There is much to be gained from a partnership between health workers and school staff in regular schools. Teachers can play an important role in public

health planning by collaborating with local health services and systems in the early identification and referral of children with suspected hearing difficulties, as well as educating schoolchildren, their parents, and community members about ear and hearing care.

Early referrals of schoolchildren suspected as having hearing difficulties or ear disease will ensure that either appropriate treatment is in place with medical intervention or that early intervention can be provided for managing the impact of the hearing difficulty experienced by the child.

When children are identified as being hard of hearing or deaf, teachers can provide a safe, nurturing, accessible, and inclusive environment for them to learn alongside their hearing peers. Teachers' understanding of how to provide this environment for young children with hearing difficulties is critical to their future learning and development.

This issue will help ear and hearing health workers and regular teachers to understand:

- How schools are a key component of public health planning and interventions for ear and hearing health.
- How ear disease and hearing difficulties can have an impact on children's learning.
- What teachers can do in the classroom to improve the ear and hearing health of all children in their care.
- How to help parents of all schoolchildren understand about ear and hearing health.

IN THIS ISSUE

- 1 Ear and hearing health in schools**
Siân Tesni
- 2 Public health interventions in schools for ear and hearing health**
Andrew Smith and Diego J Santana-Hernández
- 5 What teachers need to know about the impact of ear disease and hearing loss on children's learning and development**
Wendy McCracken, Valerie Newton, Paddy Ricard and Siân Tesni
- 7 What teachers can do in a classroom to improve ear and hearing health**
Siân Tesni and Nassozi B Kiyaga
- 10 Communicating with schoolchildren's parents about ear and hearing health**
Patricia Castellanos de Muñoz
- 12 Signs of ear disease and hearing loss that teachers can look out for in schoolchildren**

Public health interventions in schools for ear and hearing health



Andrew Smith
Honorary Professor, International Centre for Evidence in Disability, London School of Hygiene and Tropical Medicine, United Kingdom



Diego J Santana-Hernández
ENT Surgeon, CBM's Senior Global Advisor for Ear and Hearing Care, Santa Cruz de Tenerife, Spain

Mainstream schools are an effective, but often forgotten, location to implement public health interventions, including those to promote ear health and prevent or identify hearing loss.

Why intervene in schools?

Advantages

Several aspects make schools (primary and secondary) particularly suitable for public health interventions:

- They have a 'captive' population, i.e. schoolchildren are required to be present at school and any public health intervention would not have to rely on voluntary attendance.
- In areas where school enrolment and attendance are high, school population may include all members of the population of school-going age. This enables maximum coverage for public health interventions.
- Schools are key institutions in their community in providing and disseminating knowledge, skills and understanding, and promoting human rights. As such, school staff can seem like natural allies in the drive to improve the community's health.
- There already exist a number of public health interventions in schools, so schools may be receptive to new interventions for ear and hearing health. Several bodily systems – such as ears, eyes, teeth and nutrition – can be addressed at the same time.
- Schoolchildren can be enabled and encouraged to spread health education messages to their siblings, parents, relatives and friends in their community.

In addition to these general advantages, there are several reasons why schools are a good location to

implement specific interventions to improve ear and hearing health:

- All children at primary school and secondary school, from ages 5 to 18 on average, can be targeted. Children from birth to primary years are particularly susceptible to ear diseases and this is an important period in the development of the organ of hearing.
- Teachers and schoolchildren in the upper grades may be readily trained to recognise and address ear problems and hearing loss among the general school population without needing extensive technical training.
- Because children learn to speak by listening, children with unidentified hearing loss often experience delays in their language and speech development. Teachers can compare schoolchildren of the same age and thus identify those having trouble with speech and language.
- A child's progressive hearing loss may go undetected in a family environment where the environment is small, communication is one-to-one, and all is familiar. In a larger environment such as a school classroom, a teacher may suspect progressive hearing loss if they have been taught what to look out for (referral must be arranged for clinical diagnosis).
- Teachers may also be able to detect those children with a hearing loss in one ear if they know what to look for, e.g. difficulty in detecting where a sound comes from, problems knowing what is said when spoken to on the side of the poor ear or when the good ear is close to a source of noise. Detecting a hearing loss in one ear enables the teacher to sit the child with the good ear towards him/her or speak to the child facing them.

Limitations

- It would be preferable to detect any hearing loss as early as possible (through newborn and early years screening programmes), particularly in relation to interventions for speech, language and communication development. A school programme does not replace a newborn screening programme.



This journal is funded by CBM



Editor
Dr Paddy Ricard

Editorial committee
Dr Diego J Santana-Hernández (Chair)
Dr Ian Mackenzie
Professor Valerie E Newton
Dr Tony Sirimanna
Professor Andrew Smith

Special advisor for Issue 18
Siân Tesni

Regional consultant
Professor Jose M Acuin
(Philippines)

Editorial assistant
Joanna Jeremy

Design
Lance Bellers

Printing
Newman Thomson

Online edition
See 'Publications' on <http://disabilitycentre.lshtm.ac.uk>

How to subscribe
The journal is sent free of charge to readers working in low- and middle-income countries. To subscribe,

please send your name, occupation, postal address, phone number and email address to: Joanna Jeremy, Community Ear and Hearing Health, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, United Kingdom. Email: Joanna.Jeremy@lshtm.ac.uk

We recommend that readers in high-income countries make an annual donation of UK £10. To subscribe,

please contact Joanna Jeremy (as above).

Correspondence
Please send all enquiries to: Joanna Jeremy (for contact details, see left).

Copyright
Articles may be photocopied, reproduced or translated, provided they are not used for commercial or personal profit. Acknowledgements should be made to the author(s) and to *Community Ear and Hearing Health*.

- In many low- and middle-income settings, children who are hard of hearing or deaf are not enrolled in mainstream education – and therefore will not benefit from an intervention based in mainstream schools.¹

Public health interventions in a school environment

These interventions can be grouped into three categories: primary, secondary and tertiary prevention.

1. Primary prevention

This describes public health interventions aiming to prevent the onset of a disease or risk factor that causes hearing loss. In school settings, primary prevention strategies include:

- **Raising awareness** about ear and hearing health among pupils, teachers, parents and the community.²
- **A health assessment** (preferably mandatory) for children starting school. It should check that children have been vaccinated against infectious diseases that may cause hearing loss (e.g. measles, mumps, and pneumococcus), against congenital rubella (in girls before they reach child-bearing age), and against meningitis where it is endemic. This assessment should also be an opportunity to inform schoolchildren (as well as parents and school staff) on how to access primary ear and hearing care.
- **Noise mitigation programmes.** Noise-induced hearing loss is increasing, particularly among children and young adults exposed to high levels of environmental and recreational noise. Classrooms should be designed to limit levels of noise, and steps should be taken to reduce noise in environments that are already noisy (e.g. by covering floors with carpet or having ceilings in classrooms to reduce noise from other classrooms). Schoolchildren should be informed of risk factors for noise-induced hearing loss, preferably as part of a wider country-level programme.

2. Secondary prevention

Secondary prevention aims to reduce the impact of ear disease and/or hearing loss through early intervention. It intervenes at the stage where a person already has some signs of ear disease, hearing loss or disability, but this has not so far become apparent or serious.

In school settings, secondary prevention includes:

- **Screening** children for early signs of ear disease or hearing loss and referring them to enable early intervention. Ideally, screening should be part of a standardised national screening programme and built into national plans for education and healthcare, and made mandatory.
- **School healthcare:** every school should provide some form of healthcare, e.g. via a nurse or health-trained teacher who can recognise ear and hearing problems and manage or refer them appropriately.

3. Tertiary prevention

For the World Health Organization (WHO), tertiary prevention is equivalent to habilitation or rehabilitation.³ Re/habilitation actions, when carried out on a large scale in a population, are public health interventions which have the potential to significantly reduce the disabling effects of hearing loss. These interventions would



SHELY CHADHA

include provision of hearing aids and other amplification devices, speech-language therapy, inclusive and special education, and vocational training.

Schools have an important role to play in tertiary prevention. They can:

- Refer those identified as having ear disease or hearing loss during screening or at a school health clinic.
- Offer support to users of hearing aids and other hearing devices, as well as sign language support for deaf schoolchildren.
- Use assistive devices in the classroom when children who are deaf or hard of hearing are present and offer educational support in class as needed (see article on page 7).
- Include schoolchildren who are deaf or hard of hearing in mainstream schools.
- Identify students with hearing loss who would benefit from but cannot afford hearing aids or other hearing devices.

Screening schoolchildren for ear disease. **INDIA**



ANDREW SMITH

Schoolgirl dry mopping her friend's ear under supervision. **KENYA**

What ear and hearing health workers can do

Public health policy planning

Ear and hearing care professionals can help advocate for the inclusion of ear and hearing health in school health programmes. Some national plans may only mention hearing screening as needing to be included in the national school health guidelines. Health workers should bring to the attention of policy makers other school-based interventions that should be part of public health policy for ear and hearing healthcare.

Engaging with schools in their local setting

When there is no public health planning for ear and hearing care,⁴ or interventions to improve the ear and hearing health of schoolchildren, ear and hearing care (EHC) workers can still engage with schools locally.

They can intervene directly in schools, e.g. by conducting screening camps or health assessments. They can also train and empower school staff to help improve schoolchildren's ear and hearing health. They can carry out the following actions:

- Train teachers and schoolchildren to change attitudes and adopt classroom measures to include children who are deaf or hard of hearing (see pages 5 and 7).

Continues overleaf ➤

- Train all teachers to recognise which of their schoolchildren are experiencing hearing loss; some teachers may also be trained to examine ears for ear disease, carry out simple interventions and/or refer for further evaluation at the nearest primary health centre (or a secondary or tertiary facility if nearby).
- Teach and train schoolchildren, teachers, parents or guardians, to provide and spread health education messages about ear and hearing health, prevention of the causes of hearing loss, and hearing-healthy lifestyles. Schoolchildren can be taught to be credible messengers of public health messages to their parents and community.
- Train responsible, senior schoolchildren to check and monitor other schoolchildren for basic conditions, such as ear infections and hearing loss, and carry out simple interventions, under supervision, such as ear mopping for chronic suppurative otitis media.⁵
- Train teachers to help hearing aids users, e.g. by ensuring hearing aids are working at the beginning of the school day and are used, by showing children how to take care of them if they are old enough, helping to replace batteries, and organising repairs.

The next section examines what needs to be considered to make sure these school-based interventions are successful, using the example of screening.

Screening for hearing loss and ear disease in schools

Screening aims to identify individuals with early signs of ear disease or hearing loss and enable early intervention to stop or minimise its progression. Hearing screening and ear examinations should be performed on school entry, and at regular intervals (usually annually) after that.

Conditions that can be suspected from school screening

They include: impacted cerumen in the ear canal, otomycosis (fungal infection of the ear), the presence of a foreign body in the ear, acute otitis media (AOM), otitis media with effusion (OME), chronic suppurative otitis media (CSOM), traumatic damage to the ear, sensorineural hearing loss, conductive hearing loss, as well as suspicion of other cognitive and behavioural conditions which should be referred to the appropriate specialists for further evaluation.

Who should be involved?

School-led screening:

Ideally a screening programme should be run by the school itself. Screening may be done by a school nurse or by school teachers using a simply worded screening form, where feasible, or by frequency- and decibel-controlled screeners such as hand-held screeners, calibrated animal sound games or other acoustic toys. Teachers can also be trained to do hearing testing using a basic audiometer, but an experienced otoscopist, such as an ENT specialist or clinical officer in ENT, would be needed for the ear examination, and to carry out and interpret tympanometry, if available.⁶

Mobile screening led by health workers:

Mobile teams can visit schools or set up local ear camps. Staff required for a camp-based approach will include:



ROSARIO RICALDE

Doctor performing a tuning fork test on schoolchildren.

PHILIPPINES

- Primary-level doctors or clinical officers trained in ear examination
- Technician who can undertake screening audiometry and tympanometry
- Skill-trained teachers and top-level school leavers needing experience.⁶

Three important considerations when conducting screening in schools

1. Raising awareness about ear and hearing care

School screening should always include awareness creation among the schoolchildren and teachers regarding primary ear and hearing care.

2. What happens after screening?

All children identified with ear problems through screening must be referred to the local primary healthcare centre and, if more complicated, to an ear specialist. Children presenting with hearing loss must be referred to the local health authorities for further audiometric evaluation. The mechanisms of the referral and linkages must be set up prior to initiation of the programme. All identified children must receive proper treatment, in accordance with their problem. A follow-up record and database has to be maintained by both the screening agency and the school.

3. Communicating with parents

- Parents of children who are going to be screened must be informed prior to screening and their consent obtained in an appropriate way.
- If the child has a problem that requires attention and the child needs to be referred for further check-up, the parents must be called to the school and informed in person about the situation and the required action.
- If parents do not allow their children to be screened for religious or cultural reasons, the school should tactfully ascertain the reason why and try to seek a mutually acceptable solution (e.g. carry out the screening test at home or on a non-school day).

Conclusion

A partnership between ear and hearing health personnel and school staff can be very effective, but it is important to plan ahead and make sure that referral pathways and access to care exist for those schoolchildren who will be identified as having ear disease or hearing loss.

In addition, since deaf children may not attend school, determined attempts should be made to reach them and all children in the community including all out-of-school ones.¹ Ideally, a coordinated community screening programme should complement school-based interventions.

References

- ¹ McPherson BD & Holborow CA. School screening for hearing loss in developing countries. *Scandinavian Audiology* 28 (suppl.): 103–110 (1988).
- ² The WHO Manuals on Primary Ear and Hearing Care contain health education material on these topics. There are four manuals: 'basic', 'intermediate trainers', 'intermediate students', and 'advanced'. WHO, Training Resource in Primary Ear and Hearing Care. WHO: Geneva, 2006. ISBN 92 4 159361 X. See www.who.int/pbd/deafness/activities/hearing_care/en/index.html
- ³ Habilitation and rehabilitation have slightly different meanings. According to Rehabilitation International, rehabilitation refers to regaining skills, abilities, or knowledge that may have been lost or compromised as a result of acquiring a disability or due to a change in a person's disability or circumstances. See: www.riglobal.org/projects/habilitation-rehabilitation/
- ⁴ Smith AW. Public Health Planning for Hearing Impairment. *ENT & Audiology News* Vol 26 N°5 (Nov/Dec 2017): 76–77. www.entandaudiologynews.com/features/audiology-features/post/public-health-planning-for-hearing-impairment
- ⁵ Smith AW et al. Randomised Controlled Trial of Chronic Suppurative Otitis Media in Kenyan Schoolchildren. *Lancet*, 348, 26 October 1996, p1128–1133.
- ⁶ Chadha S, Castellanos P, Brouillette R and Santana-Hernández D. Criteria of success and Technical guidelines in Ear and Hearing Care. CBM advisory working group in Ear and Hearing Care. Section 9: Infant and child screening. CBM: 2010.

What teachers need to know about the impact of ear disease and hearing loss on children's learning and development



Wendy McCracken
Professor in the Education of the Deaf, University of Manchester, United Kingdom



Valerie E Newton
Professor Emerita in Audiological Medicine, University of Manchester, United Kingdom



Paddy Ricard
Editor of *Community Ear and Hearing Health*, London, United Kingdom



Siân Tesni
CBM's Senior Advisor for Education, United Kingdom

Raising awareness about ear health among primary schoolchildren.

BURKINA FASO



RAFAEL OLIEDRAOGO

Teachers are in a unique position to spot early signs of ear disease or hearing loss, and inform children and parents about the importance of early intervention. This article presents messages that can be used by ear and hearing care workers to advocate for the involvement of schools and teachers in ear and hearing health interventions.

Common causes of ear disease and hearing loss in schoolchildren

Difficulties in hearing may be present from birth or acquired during childhood or adult life and may be mild or very severe.

If present at birth, hearing difficulties could be **inherited** from one or both parents, or be the result of **infections** or **medications** during the mother's pregnancy or problems around the time of birth.

Hearing loss acquired by a school-age child may be due to treatable causes such as **wax**, **foreign objects** inserted into the ear canal, or **infections** such as otitis media which affects the middle ear. In a chronic middle ear infection, a discharge may be noticed coming from one or both ear canals.

Permanent hearing loss may also be acquired in childhood due to **infections** such as meningitis, measles or mumps.

Permanent hearing loss may also be due to exposure to **noise**, such as the loud noise from fireworks or from listening to loud music, especially when it is played directly into the ear through earphones.

Effects of ear disease and hearing loss on learning

Impact on children's communication skills

Infants and young children:

Babies usually learn language effortlessly, when parents talk both to them and to those around them. During the first year of life children develop listening skills and use them as a basis for babble, with first words typically emerging at 12–15 months.

For a child with any degree of hearing loss, the loss of sound stimulation will disrupt the development of communication skills. When words are only partially heard or not heard at all, language and communication skills will be slow or may not develop. This will depend on the degree and type of deafness. A child who is deaf or hard of hearing thus starts school at a disadvantage unless early intervention has been provided and is likely to need additional help in class.

School-age children:

A child who has difficulty hearing may quickly lose interest in the lessons being given. Those children who have a moderate or severe hearing loss may not want to attend school at all, as they are not only unable to hear the teacher but cannot hear other children speaking in class or in the play area. They may not hear warnings and could be at risk in the event of a fire or other emergency.

In some low- and middle-income settings, children often suffer during their school years from recurrent episodes of otitis media, which result in temporary hearing loss. This means that they can spend a considerable time each year with a hearing deprivation equivalent to a mild or moderate hearing loss. This can severely affect attention span, the acquisition of language, and reading and writing skills.

Impact on behaviour and social life

An unrecognised deafness can seriously affect a child's psychosocial development. They will not understand comments or requests and may get into trouble with parents or neighbours because of this. They will find it hard to understand why parents or teachers are angry or upset. Understanding other children will be hard, causing the children with hearing loss to be left out of games; they may be bullied because they are perceived as different.

Schoolchildren with hearing difficulties may not only appear inattentive and disobedient but also start to behave badly. (Children with a middle ear infection may behave better on some occasions than others, as the condition fluctuates.)

Continues overleaf ➤



PATRICIA CASTELLANOS DE MUÑOZ

Letting a child play with the otoscope before screening for ear and hearing health in a school. GUATEMALA

Deaf children may be very withdrawn or display unacceptable behaviour such as pushing, pinching or biting. These children are often thought to have a learning disability rather than a hearing loss.

Teachers need to be made aware that a deaf child is more likely to suffer physical, sexual and verbal abuse than a hearing child, as they are unable to complain. Withdrawal and disobedience, especially if the child has bruising, may be an indication of some form of abuse. If a teacher suspects this, then it is important to liaise with the appropriate welfare authorities and not follow it up personally.

The importance of early intervention

Early intervention in case of hearing loss

If permanent hearing loss is identified before six months of age and deaf children are given access to well-fitted amplification (used and checked regularly), these children can (and do) learn to speak, read and go to their local school. Deafness does not have to

mean that a child will not be able to speak, but it does mean they will need access to sound by using assistive devices. Regardless of amplification, the more severely deaf children benefit from additional signed communication.

If a child's hearing loss is identified late, aged six years or older, all the most important years for learning language have been lost. Progress will be made but it will be more limited. The earlier the hearing loss is found, the earlier help can be provided. If treatment is not possible, hearing devices can be used to amplify sound, e.g. hearing aids. Where possible, a wireless link may be used in addition, to enable the teacher's voice and those of other children to be heard more clearly. Some children with a very severe hearing loss may be able to have a device inserted into the cochlea in the inner ear (a cochlear implant), which is connected to a speech-detecting device and sends signals to the brain representing the sounds heard. It is worth mentioning that cochlear implants, and especially rehabilitation afterwards, are very expensive.

Early treatment of ear disease

Early treatment of ear diseases could prevent a condition which is causing temporary hearing loss from becoming a more permanent one with worse consequences for the child concerned. Several treatable causes – such as wax, foreign bodies in the ear canal, or infections such as otitis media – can be addressed at the primary health care centre. For example, early suspicion of and conservative management of an acute otitis media would significantly reduce the risk of developing an otitis media with effusion or a chronic otitis media (which would require more complex specialist treatment in order to avoid permanent hearing loss).

Another effective measure for early intervention at school level is the promotion and endorsement of the country's Expanded Programme on Immunisation (EPI), particularly for the prevention of infections such as meningitis, measles, mumps or rubella through adequate vaccination.



SHEELI CHADHA

Otoscopic examination during a screening camp for schoolchildren. INDIA

WHAT TEACHERS NEED TO KNOW ABOUT ASSISTIVE DEVICES FOR CHILDREN WITH HEARING LOSS

- Hearing aids and/or cochlear implants do not restore normal hearing, but amplify and transmit sound using alternative methods. Schoolchildren who use hearing aids may not be able to hear all of the sounds of speech even when it is quiet and the speaker is close by.
- If there is **any** background noise, the child will almost always miss some of what is said in the classroom, as hearing aids will not distinguish between speech and noise.
- Hearing aids or cochlear implants allow most wearers to perceive speech occurring **within a distance of 3 to 6 feet**. Imagine a transparent bubble over the child that is 6 feet in diameter. Any speech from farther away will likely be 'heard' but not all of the parts of speech will be perceived.
- A schoolchild may 'hear' but not completely understand what was said because pieces are missing and it takes extra effort to figure it out. Language delays make this even more challenging.
- Children with a hearing loss affecting the inner ear may have a problem called 'recruitment', in which a small increase in the loudness of a sound is perceived as being very loud. This is an unpleasant experience for the child and can also result in speech sounds being more distorted.

Learning with a hearing loss in a mainstream school

There may be children with hearing loss in the classroom, some of whom may have access to assistive devices. Health workers should explain to teachers that although these devices facilitate learning, they do not restore normal hearing (see Box on this page).

Whether children have access to assistive devices or not, their learning will always improve if teachers implement the measures described on pages 7–9 of this issue. These will benefit all schoolchildren, not just those with hearing difficulties.

Teachers should be aware that a child with a hearing loss may also have other sensory problems, e.g. sight problems, which if undetected can more than double their disability in the classroom.

Finally, it is worth remembering that teachers play a very important role in the life of a deaf or hard of hearing child, as a good education is the road by which many will be successful in later life.

What teachers can do in a classroom to improve ear and hearing health



Siân Tesni
CBM's Senior Advisor
for Education,
United Kingdom



Nassozi B Kiyaga
Teacher of the Deaf;
Executive Director,
Deaf Link Uganda,
Uganda

Ear and hearing care workers can help teachers to play an important role in improving schoolchildren's ear and hearing health. This article focuses on what classroom teachers can do to identify hearing difficulties and ear problems in children, how they can raise awareness of ear and hearing health, as well as improve learning conditions for children with hearing loss.

Identifying possible ear and hearing health issues

Many school-age children develop hearing loss that remains undiagnosed. This has an impact on their learning and can cause children to drop out of the education system, particularly in low-resource settings. Sometimes a child is referred to as having a learning disability or learning difficulty, e.g. Attention Deficit Disorder (ADD), when in fact the root cause of the behaviour is an inability to hear well. Even a hearing loss in one ear can have an impact on a child's learning.

Many conditions can lead to hearing difficulties, temporary or permanent, and need to be spotted and treated early. Listed below are indicators that teachers should look out for among the children in their class.

Indicators of hearing loss

Children with a hearing difficulty can display the following:

- **Speech problems:** a child may say words or respond incorrectly or have delayed speech, language and communication. They may feel more comfortable with gestural communication.
- **Poor attention span:** a child may not respond to being called by name most of the time or may not

respond to things the teacher has said. This in itself is not enough of an indicator of hearing difficulties, but if this child looks confused or does not carry out instructions on a regular basis and seems to look at the teacher's face more than other children (lip-reading and looking for clues such as facial expressions), this could be an indicator.

- **Need for higher volume or louder speaking voice:** a child might speak more loudly than some of their peers or turn up the radio/TV in order to hear sounds. Children with a unilateral hearing loss often speak loudly, or conversely speak very softly.
- **Not following instructions:** a child may be confused, bring the wrong items, or regularly ask for repetition.
- **Looking the wrong way:** a child with a hearing loss in one ear or with an asymmetrical hearing loss may look first in the wrong direction when their name is called.
- **Learning difficulties:** the child may have a learning problem or may not seem able to follow the discussion or conversation.
- **Social withdrawal:** children with hearing loss can have a tendency to avoid social situations, sports, parties, and family events. Inability to communicate and understand during such gatherings can be overwhelming for an individual. Sadly, if a child is hard of hearing and is asked why they avoid these situations, they might not know. To them their hearing loss is normal, so the child remains unaware that they are not hearing at the same level as everyone else.
- **Disruptive behaviour:** a child with hearing loss may also show quite disruptive behaviour, distracting the teacher and other children, displaying attention-seeking behaviour to mask the real issue of not being able to hear well. Attention-seeking behaviour may, in some instances, indicate that the child is also suffering from verbal or physical abuse. If this is suspected, then the teacher should report their suspicions to a health worker.

Indicators of ear disease and risk factors

Ear disease can cause temporary or permanent hearing loss. Even temporary hearing loss caused by a recurring ear disease can have a significant impact on learning.

Teachers should refer for ear and hearing care children who present the following indicators of ear disease:

- discharging ears
- ear ache
- trauma to the ear
- problems with balance.

Lesson on healthy ears in a primary school.

BURKINA FASO



RAFAEL OLIEDRAOGO

Continues overleaf ➤

Personal experience



“As a child in school I was aware that I couldn't hear as well as my peers, but I didn't know what to do about it. Continuous requests to repeat were considered disruptive to the class and teacher, and my peers might have thought that I was foolish and slow to understand. To avoid a negative label, I'd pretend to understand, which reflected itself in poor performance.

For teachers who were aware of my hearing loss, repeating was no problem – they encouraged me because my parents had informed them in advance. They also gave me extra attention, so my performance in their subjects was good.”

Nassozi B Kiyaga

Some children also need to be monitored for hearing loss by teachers if they present the following risk factors:

- They have been exposed to very loud sounds over a long period or have been exposed to an explosion.
- They have had a very serious illness (requiring strong medication which could be ototoxic).
- They have had meningitis, measles, or malaria.
- They have suffered trauma to the head.
- They have an unusually heavy, persistent or recurrent cold.
- They have a family history of hearing loss.
- They complain of noises in the ears (tinnitus).

Referral pathways

Ear and hearing care workers should make sure that teachers and school staff know where and how to refer a child they have identified as having potential ear and/or hearing problems.

They should explain to teachers when the child needs to have an ear examination and/or hearing test by a professionally qualified person, as well as the type of professional they should consult (e.g. audiologist, ENT specialist, specialist teacher of deaf children, etc.).

Raising awareness of ear and hearing health among children

It is very important for teachers to explain the importance of healthy ears to schoolchildren.

Key messages

It would be a good idea to ask a health worker to come and give a lesson on healthy ears at the beginning of a school year, so that children build up a good relationship with health workers and are then not afraid to go to a clinic, e.g. if they have an ear infection.

The Box on this page contains key messages that teachers can share with children in their class.

KEY MESSAGES FOR SCHOOLCHILDREN

Our ears help us learn. This is what you can do to look after your ears:

- Do not swim in dirty water.
- Do not listen to loud noises, particularly if they last for long periods of time. If you are listening to music with headphones, do not listen at maximum volume.
- Do not put objects in your ear, particularly sharp objects (and do not use Q-tips).
- If you cannot hear well, there are many ways to help you, so ask for help.
- Avoid loud noises in your surroundings, e.g. loud music, loud bangs or explosions.

Tell an adult to take you to the health centre if:

- You have a runny ear
- Your ear hurts
- Your ear feels hot
- There is something stuck in your ear, even if you put it there yourself
- You feel you cannot hear as well as before, or as well as other children
- You feel dizzy when walking.

It is always much better to ask for help as soon as possible. Waiting can make things worse.

Involving children

This will encourage ownership and help children remember.

Ideas for involvement include:

- Asking children to help formulate key messages and slogans.
- Designating 'ear monitors', i.e. children responsible for ear and hearing health in the classroom.
- Asking children to assist with creating resources about ear and hearing health.
- Organising a competition for the best poster or resource.
- Using practical materials easily available in the community (e.g. leaves, plastics, cardboard) to make toys or learning materials. Such materials are sustainable and have cultural value.
- Messages for hearing children to help them understand the problems faced by their friends who are deaf or hard of hearing (see page 9).
- Bringing these topics into social science or science classes.

Optimising the classroom for better learning for children who are hard of hearing or deaf

Environment

- Good lighting (from windows and lights) is important.
- Seating arrangement: depending on the size of the class, a 'U' shape is better because it enables all speakers to be seen.
- Sitting children with hearing difficulties near or at the front, next to a hearing child, to make sure that missed instructions can be reinforced.
- Good sound insulation is very important. Carpeted or soft flooring reduce background noise and reverberation.

Resources and materials

- Visual aids can be made by the children if not available from education authorities. You can also ask parents to help.
- Make sure that key points are written on the board.
- Send key words and lesson plans home with the children so that they can learn them at home before coming to school (pre-teaching).

What teachers can do

- Keep the noise level in class to a minimum, to encourage better communication.
- Repeat key points; rephrase them using different words. Children with a hearing loss may need to hear something 5 times to 'get it' when their peers may only need 1–3 times (because the more effort is spent listening, the fewer cognitive resources are available for understanding new information).
- Explain vocabulary such as idioms and words with multiple meanings: these are often learned by overhearing others use them in daily conversations, which will be more difficult for a child with a hearing loss.
- Use innovative teaching methods, eye catching and colourful materials, including gestural communication for technical subjects.

- Provide opportunities for active learning which are child-centred.
- Create a learning environment where all children's contributions are valued.
- When possible and available, make sure to use any assistive device a child might have, e.g. a hearing aid or cochlear implant.
- Discuss a sign or signal that the child can use to let you know when he or she is struggling.
- Set up peer support so that the person sitting next to the child can repeat a page number or simple instruction as necessary – the child needs to learn to advocate for her/himself.
- Be prepared to provide extra lessons to help children to catch up with their work.

A better experience for all learners

Most of the improvements listed above will not only support children with a hearing difficulty, but will improve learning for all in the class. All schoolchildren benefit from repetition and the use of a variety of teaching methods and support materials.

Similarly, minimising noise levels in classrooms avoids annoyance and disturbance, and improves performance of both children and teachers. Research indicates that it helps children with:

- long-term memory
- reading ability
- attention span
- letter, number, and word recognition
- calm.

Finally, a positive, friendly, motivating teaching attitude is essential, not just for children with hearing difficulties, but for all children.

Managing a successful inclusive classroom

Over the last decade and more there has been an increased international commitment to inclusive education.^{1,2} This means that all children, regardless of gender, age, disability and other factors, should go to school in their local community. Both the adoption of the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD 2006) and Agenda 2030 (2015) reflect this commitment.

To successfully include all schoolchildren:

- Parental involvement is crucial.
- Children with disabilities need to learn at their own pace and have reasonable accommodations and alternative assessment strategies in place to meet their unique needs.
- Schoolchildren need to experience success: learning goals need to be specific, attainable and measurable and have some challenge to them.
- There need to be opportunities to devote time to non-academic subjects, like music or sports, to make it possible to identify a child's development and strengths in other areas.
- There needs to be a climate where children help each other. Teachers can also give tips on how to communicate better with a child who has a hearing loss (see Box on this page).

TIPS TO COMMUNICATE BETTER WITH A CHILD WHO HAS A HEARING LOSS

- Communicate in the way they find works best for them – be that spoken, signed, written communication or a combination of all of these
- Get their attention before communicating
- Face them when communicating
- Speak clearly and naturally
- Do not cover your mouth
- Use visual cues where possible
- Make it clear what the topic of conversation is
- Stand with your face to the light
- Speak one at a time and reduce background noise
- Do not give up – keep trying.

- Teachers should also be aware that children with hearing loss may have additional learning needs, such as dyslexia or visual impairment.
- When there are deaf or hard of hearing learners in the class, adults who are deaf or hard of hearing can be invited to school to help or tell their life experiences.
- Additional specialist support may also be required, such as sign language support, provision of close captioning, amplification aids and the support of a specialist teacher to help the teacher manage an inclusive classroom.

Conclusion

Teachers can play an important role in helping to identify hearing loss and ear problems, in encouraging families to seek treatment early and making sure children are aware of situations and behaviours that can threaten their ear and hearing health.

Capacity development is essential to enable teachers to fulfil this role. Ear and hearing care workers should establishing links with schools, in order to train and support teachers in acquiring the basic skills and knowledge necessary to improve ear and hearing health. Ear and hearing care workers can also ensure that the school nurse is trained in ear and hearing care.

In addition, for additional specialist support, schools should link with inclusive education services and specialist teachers who work with children who are deaf or hard of hearing.

References

- ¹ <http://www.ohchr.org/EN/HRBodies/CRPD/Pages/GC.aspx>
- ² <http://www.un.org/sustainabledevelopment/education/>

Useful resources

www.hear-it.org/10-signs-that-your-child-may-have-a-hearing-loss

<https://deafchildreinaustralia.org.au/wp-content/uploads/2014/11/Deaf-Child-in-Classroom-2012.pdf>

www.ndcs.org.uk/professional_support/our_resources/index.html

<https://wvdeaf.org/>

www.ifhoh.org/

Sign language interpretation in an inclusive classroom.

BURKINA FASO



PADDY RICARD

Communicating with schoolchildren's parents about ear and hearing health



Patricia Castellanos de Muñoz
Audiologist; Director General, CEDAF Centre, Guatemala City, Guatemala

The involvement of parents is essential for the timely treatment of ear problems in children and for early intervention to support children with hearing loss. Because school staff are uniquely placed to liaise with parents, health workers should train teachers in mainstream schools to communicate essential messages for the improvement of ear and hearing health. This communication between teacher and parents will reinforce and support information given directly by health personnel.

Parents' preconceptions

Ear and hearing health workers can make teachers aware of the misconceptions and lack of interest that they may have to overcome when communicating with parents. Most people do not pay due attention to ear and hearing health. There may be several reasons for this:

- Most children with hearing loss (all degrees) are born to hearing parents who are, therefore, not familiar with the impact of hearing loss.
- We tend to see hearing loss or ear disease as something not relevant to us (e.g. as a problem affecting the elderly or children attending special schools).
- Hearing impairment is not always as noticeable as other disabilities are.
- We are often unaware of the many ways in which hearing is important (e.g. road safety), whereas we are usually aware of the importance of vision.
- It is thought that we either have hearing or we don't, that there are no in-betweens. We rarely consider the risk of partially losing it.

Teachers may also have to contend with negative attitudes or stigma towards 'deafness'. These include:

- Hearing loss is usually a parent's fault – very often specifically the mother's.
- A child's hearing loss is the sole responsibility of health and education professionals.
- Ear diseases may be contagious.
- Deaf children cannot learn.
- Disapproval of a hearing child's interaction with children who are deaf or hard of hearing.

Course offered by ear and hearing health professionals to teachers and parents of children with hearing loss. GUATEMALA



Important messages for parents

When training teachers to talk to parents or when interacting with school parents themselves, health workers can focus on the following topics:

Ear care and hearing conservation

- Normal hearing (auditory) function.
- Types of hearing loss and their causes: parents should especially be taught about the serious health consequences of untreated and recurrent middle ear diseases.
- Basic ear care and ear cleaning.
- Noise-induced hearing loss: this is very important because young people are now often exposed to recreational noise.
- Parents of children who are deaf or hard of hearing may believe that 'there is little or nothing left to lose'. It is important to explain that the principles of ear and hearing care must also be applied to their children.

Signs that a child's hearing is deteriorating

A child who has had normal hearing can develop a hearing loss, for example after an infection. Parents should be told to look out for the following signs in their child:

- Increases volume of TV/radio
- Turns his/her face to focus one ear towards the sound source
- Complains of pain or itching in the ear
- Asks for sentences to be repeated
- Seems inattentive
- Does not react to environmental sounds as before
- Speech becomes poorer after a major infection, e.g. meningitis.

Hearing is vital for linguistic performance and development

Parents should be told that a hearing loss, even if mild, will jeopardise normal development of cognitive skills and communication and it may have an effect on academic performance, especially reading and writing skills. Attention span will also be negatively affected.

It should also be highlighted that the temporary hearing loss resulting from ear infections becomes significant when children suffer recurrent episodes throughout the academic year.

How to help children who are deaf or hard of hearing fulfil their potential

Children who are deaf or hard of hearing can develop their potential in a regular community school. For this to be an effective option, a close relationship and communication between parents, teachers, and health workers is vital. Children will need support services from the school, their teachers, and a multidisciplinary team. Health workers should carefully explain what services are available and/or necessary.

Inclusive education

Some parents of hearing children may think their child's education will be negatively affected if there are

TABLE 1 TYPES OF MESSAGES THAT CAN BE DELIVERED TO PARENTS

Target group	Important messages to convey
Parents whose child has normal hearing	<ul style="list-style-type: none"> • Ear and hearing care • Avoidable causes of hearing loss and ear disease • Signs of ear disease or hearing loss to look out for
Parents whose child has normal hearing and shares classes with children who are deaf or hard of hearing	<ul style="list-style-type: none"> • Explanation of inclusive education • How to communicate with a child who is deaf or hard of hearing • Causes of hearing loss • Hearing aids and cochlear implants • Signed communication
Parents whose child has normal hearing but suffers from frequent ear disease	<ul style="list-style-type: none"> • Importance of early treatment to avoid hearing loss • Negative effect of temporary hearing loss on learning • Risk of temporary hearing loss becoming permanent (e.g. with CSOM) • Early signs of ear disease
Parents whose child is deaf or hard of hearing	<ul style="list-style-type: none"> • Available assistive devices • Communication strategies with their child • How to help their child fulfil their potential • Inclusive education: support services • Peer-to-peer interaction • Involvement of adults who are deaf or hard of hearing as role models or support workers

← *These messages are useful for **all** parents*

children in the classroom who are deaf or hard of hearing. Teachers can explain that every child has different needs, not just children with hearing loss. Many of the methods used to enhance learning for schoolchildren who are deaf or hard of hearing will benefit all children. If children are more aware of the needs of others, this will encourage them to be more tolerant.

Adapting messages to parents' situations

In a regular school, teachers are confronted with different groups of parents and should adapt messages to each group, as the most important communication points will vary (see Table 1). In some cases teachers may need support from health workers, e.g. when talking about assistive devices.

Suggestions for communicating effectively with parents

In low- and middle-income countries, interaction and communication between parents and teachers can be a bit difficult: e.g. parents may live far away, work several jobs, have difficulty reading, etc.

Health workers engaging with teachers should be aware that teachers may already have identified barriers to communication and found creative ways to reach out to parents. As a reminder, for communication to be more effective, it is vital to:

- Engage parents in a way that is attractive and convenient (e.g. organise meetings at suitable times, add an incentive such as a raffle, and provide snacks).
- Be punctual and do not waste parents' time.
- Provide written material containing basic information (brief, simple, friendly, with lots of illustrations), as a reference during activities.
- Offer a variety of communication activities for parents, to cover a range of learning styles and interests.
- Make sure activities are interactive and participatory.

Health workers can help teachers by suggesting activities that specifically teach parents about ear and

hearing health. They can also support teachers during some of these activities: this will make parents more familiar with health staff and will encourage them to make use of health services when needed.

The following are ideas for interactive communication on different aspects of ear and hearing health:

Importance of hearing

Organise games that encourage the use of auditory skills (detection, discrimination, association), so that parents value the importance of hearing and understand that listening goes beyond hearing alone. These games can be: auditory lotteries, 'Guess what's in the box?', pairs of sounds, 'Find the sound', sound matching, etc.

How to care for ears and hearing

- Promote Primary Ear and Hearing Care (PEHC) courses for parents and teachers.
- Using a large ear model, simulate the extraction of earwax with a Q-tip, to demonstrate how this practice can harm the ear.

Noise-induced hearing loss

- Organise exercises to measure sound levels for different sound sources and environments. You can use free smartphone apps for this (any of the Sound Meter apps can be used).
- Discuss the differences between personal headphones and test them with amplification systems without changing their volume. Analyse the differences perceived between earbuds and other headphones. Discuss the daily permissible use.

What hearing loss feels like

- Use hearing loss simulators (e.g. CDs) to present how music, voices and other environmental sounds are perceived with different degrees of hearing loss.
- To simulate hearing loss, use noise protectors during group activities such as listening to music, group discussions, listening to environmental sounds, etc.
- Facilitate interactions between children and parents and students with hearing loss.

Resources for teachers and parents

www.careforkidsears.health.gov.au/internet/cfke/publishing.nsf/Content/Home
www.noisyplanet.nidcd.nih.gov/parents
www.nidcd.nih.gov/order?&&items_per_page=5&page=4
www.asha.org/aud/HearingConservationChildren/
www.who.int/pbd/deafness/activities/hearing_care/en/
www.soundhearing2030.org/posters_on_earcare-hearingaids.pdf
www.soundadvice.info/schoolsandcolleges/schoolsandcolleges-step1.htm
www.who.int/pbd/deafness/news/CBREarHearingCare.pdf
www.hse.gov.uk/noise/demonstration.htm

Signs of ear disease and hearing loss that teachers can look out for in schoolchildren

THESE SIGNS COULD BE A CONSEQUENCE OF HEARING LOSS:

- Speech problems compared to other children of the same age
- Louder speaking voice or need for higher volume (e.g. when using a computer)
- Poor attention span
- Disruptive behaviour
- Not following instructions or not following class discussion
- Often asking for repetition and/or staring at the teacher's face
- Not taking part in playground games
- Looking the wrong way when their name is called*

*This is a sign of asymmetrical or unilateral hearing loss

Untreated ear disease can lead to hearing loss



Schoolchildren with their teacher in an inclusive school.

BURKINA FASO

PADDY RICARD

THESE SIGNS COULD INDICATE EAR DISEASE:

- Discharging ears
- Unhealthy ear (e.g. swelling, redness, unpleasant smell)
- Child complaining of earache
- Child complaining of noises in the ears
- Child constantly pulling or scratching ears
- Dizziness

Hearing loss can be masked by disruptive or withdrawn behaviour