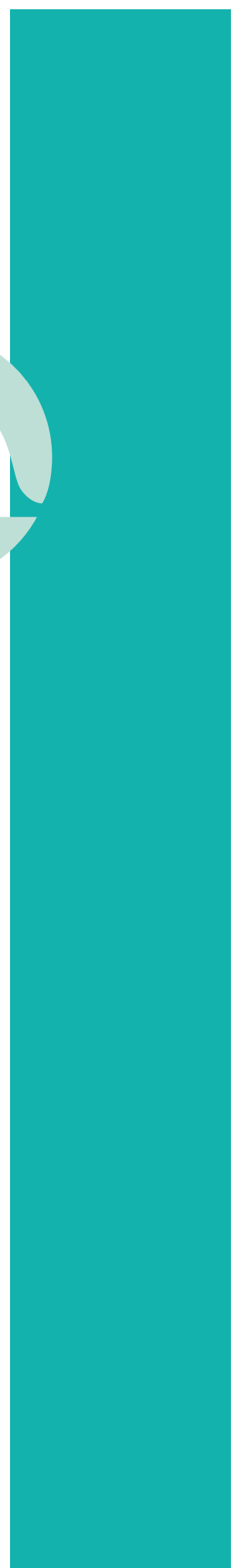


Accessibility Guidelines

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International Federation of Hard of Hearing People



(IFHOH)

Committed to worldwide hearing accessibility

<http://www.ifhoh.org>

Accessibility Guidelines For Hard of Hearing People

**"For Most People Technology Makes Things Easier
For People with Disabilities it Makes Things Possible".**

According to 2005 estimates by the World Health Organization (WHO), 278 million people worldwide have moderate to profound hearing loss. Over than 90% of them (of whom two thirds live in developing countries) would benefit from hearing aids. The number of people worldwide with all levels of hearing impairment is rising mainly due to a growing global population and longer life expectancies. Current annual production of hearing aids provides approximately 33% of those needed in high-income countries, but less than 3% of those needed in low and middle-income countries. People without hearing aids are not able to communicate adequately with their families, friends, and others around them.

The 2006 UN "Convention on the Rights of Persons with Disabilities" which for the first time promotes and protects the rights and dignity of persons with disabilities requests that "States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems..."(article 9). One of the main obstacles for accessibility for hard of hearing people is the fact that usually when people in general, and decision making in particular, think about accessibility, they are thinking about the needs of people with physical disability and especially about people with wheel chairs. Even though hard of hearing people is one of the largest groups of people with disability, in most of the world the problems and concerns of hard of hearing people are virtually ignored.

The International Federation of Hard of Hearing people (IFHOH) is a coalition of National Associations of and for hard of hearing and late deafened people. IFHOH was founded for the purpose of providing a platform for cooperation and exchange of information and to promote greater understanding among hard of hearing people worldwide. As an umbrella organization and through its individual organizations, IFHOH works for access for hard of hearing people worldwide.

The following document (based on EFHOH document) will address the definition and implications of being hard of hearing. The document will also discuss the use and availability of devices (other than hearing aids) that assist hard of hearing people and the measures required to improve their accessibility to all aspects of society. It must be recognized that levels of development differ across the world, depending on such things as hearing screening

programs, aural rehabilitation, hearing aid distribution legislations, and the general availability of information regarding hearing loss. This must be taken into account when addressing accessibility within each society.

To Be Hard Of Hearing

The term “Hard of Hearing” is used to define all groups of people with some level of hearing difficulty, including those with mild to profound hearing losses to those late deafened. Hard of Hearing people's preferred mode of communication is spoken language.

Mild Hearing Loss

People with a mild hearing loss can often manage without a hearing aid, but are dependent on specific conditions that enable good communication, such as good room acoustics, no background noise, ample lighting, and clear speech.

These days, hard of hearing people meet more challenges in daily life than they may have 100 years ago, largely due to the use of noise inducing machinery that modern society demands. A few examples of sound nuisances that make understanding speech difficult include, traffic noise, background music in shops and household machinery.

People with mild hearing loss have a similar need for visual information as those with more severe hearing loss.

Numerous people within this group have progressive hearing losses and eventually the use of hearing aids is necessary. For many of these individuals the initial step to purchase their first hearing aid is a difficult decision and one that they tend to put off. The longer they wait to receive assistance, the more prominent other difficulties become, which can result in such things as job loss, failure in education, social isolation and loss of self esteem. It is therefore imperative for professionals and organizations to educate society about hearing loss and the problems and solutions associated with it.

Moderate to Severe Hearing Loss

A good hearing aid fit is the most crucial factor to consider for those with moderate to severe hearing loss. A hearing aid can be used in conjunction with other assistive listening devices, such as induction loops and desk loops.

Hearing aids must be fitted appropriately to suit the level of hearing loss. Every hearing aid fit should be accompanied by instructions for appropriate aid use, including the management and maintenance of the device/s.

Other factors that need to be considered include the individual's finger and hand dexterity and other health conditions. Older people often have problems with hearing aids being too small and too complicated.

People in this group depend on the same conditions for effective communication as those with a mild hearing loss, including the dependence on visual information and subtitling.

Late Deafened People

Late deafened people are those who have lost all or almost all hearing ability after they have developed spoken language.

Cochlear implants have proven to be a good solution for most of these people while others in this group depend on FMs or other listening devices that can be connected to or used in conjunction with the hearing aid. In many situations the extra equipment is not enough so text interpretation (captioning at real time) or supportive signs are needed.

Text interpretation should be offered, preferably, without cost to the hard of hearing individual in any environment in which it is necessary including, educational settings, meetings, office visits, and any other situations where good communication is important.

At home, or with friends, supportive signing can be very helpful. Supportive signs must not be mistaken for deaf sign language. Deaf sign language is used by people who are deaf from birth or an early age and it has different grammatical rules to spoken language. Supportive signs are used to assist spoken language. Training courses on supportive signing should be provided (In some countries this service is given free of charge) to family and friends of the hard of hearing person. This skill would be very useful to adult deafened people who are generally heavily dependent on visual information and subtitling.

Conditions required to improve listening and communication

The following conditions are required to improve listening and communication for the hard of hearing person:

- a well fitted hearing aid that is suitable for the person and his/hers hearing loss
- good room acoustics
- good lighting
- induction loops including desk loops and neck loops
- visual information
- subtitling
- safety equipment with vibrating alarms and /or flashing light
- training courses for speech (or lip) reading and sign support

Technical Devices

Induction Loop Systems

An induction loop system helps hard of hearing people who use a hearing aid or loop listener to hear sounds more clearly by reducing or cutting out background noise. For example, at home, a loop can be used to pick up sound from televisions, hi-fis or radios. A loop can also be set up with a microphone to help hearing aid users hear conversations in noisy places. Similarly, in a theater with the appropriate set up, a loop can help individuals hear the performance more clearly. One drawback of using a loop is that it cannot provide stereo sound. If this is important the use of dual silhouette should be considered.

How Induction Loop Systems Work

An induction loop is a cable that circles the listening area and is fed by currents from a loop amplifier. The amplifier gets its signal from a microphone placed in front of the person speaking or by means of a direct connection from another sound source, such as a sound

system. The resulting electric current in the loop produces a magnetic field, which corresponds to the sound. This magnetic field can be picked up by those sitting within the area of the loop whose hearing aids are switched to the T position. The listener controls the volume of the signal by adjusting their own hearing aid accordingly. (Source: RNID).

Desk Top Loop

A desk top loop is a small induction loop that covers a small area and can be placed on or under a desk. They are important for communication in such places as ticket offices, information desks, hotel counters, banks, post offices, pharmacies and many more places. Desk top loops make it possible for hard of hearing people to receive information directly and help to limit misunderstandings.

Neck Loop

Like the desk top loop, a neck loop is also a small induction loop. It is worn around the neck, enabling the listener to use personal equipment like FM systems, mobile phones, mp3-players etc. It can also be used together with stationary equipment (like telephone and T.V).

Infra-red System

An infra-red system is an alternative to a loop system, consisting of a transmitter and a listening receiver. Sound is fed to the transmitter in the same way as with the loop system, either by a direct electrical connection or via a microphone. It is then transmitted as invisible infrared light to the listening receiver worn by the hard of hearing individual.

How to Use an Infra-red System

To utilize this system an infra-red receiver must be worn.

There are two main types of receivers available. The first is an under-chin 'stetoclip' type receiver which is mostly suitable for people who do not use a hearing aid. For those who do wear hearing aids, this type of receiver can be still be used but in most cases the removal of ones hearing aids is required.

The second type of receiver is a neck loop receiver which is used together with hearing aids set to the T position / program. This type of receiver is generally suitable for people with a greater level of hearing loss.

Infrared receivers are sometimes built into headphones, but it is important to ensure the use of those designed especially for people who are hard of hearing.

All types of receivers are battery operated and therefore give complete freedom of movement. Infrared systems are less likely to have problems with interference or sound leaking into other rooms. However, strong sunlight and dark wall coverings can reduce the quality of sound and the area that the systems can work in.

Several infrared systems can be used simultaneously in rooms next to each other and are suitable for confidential meetings. They provide high quality sound and stereo versions are available. (Source: RNID).

FM Transmitter

An FM transmitter is a portable radio wave system (with a microphone, transmitter and receiver) that can be used in all settings and gives people with severe hearing loss the ability to listen and follow conversation in settings without induction loops or infrared systems. This system is especially useful when listening to lectures, meetings or when participating in tours. The Hard of Hearing individual wears the receiver with either headphones or a neck loop and the transmitter which includes a microphone is given to the individual that is talking. Discussions are easier to follow when the microphone is directed to each person in a conversation.

Personal Sound Amplifier

Personal sound amplifier is very helpful for older people who cannot manage a hearing aid. It is easy to use and gives good amplification of speech. It is easy to adjust, even for people with poor mobility in hands and fingers.

The personal sound amplifier can be used with headphones, or neck loop and hearing aid.

Alerting / Alarm Systems

There are 3 different alarm systems for hard of hearing people:

- Acoustic signal (strengthened ringing signal)
- Optic signal (flashing light)
- Tactile signal (vibrating alarm to wear or to put under the pillow)

All these systems can be used individually or in combination. These features are often incorporated in individual alarm clocks to help hard of hearing people wake up in the mornings. More over, one single alarm system can be connected to various devices such as a smoke alarm, a door bell, a telephone, a baby cry transmitter and more. The set up of such a system in the home, office or other environments is crucial in allowing the hard of hearing individual to be aware of what is occurring in the environment and is vital also from a safety perspective in that it alerts to potential dangers, such as fires.

Telephones

Most hard of hearing people are still able to use voice telephone, but often only if the telephone allows for suitable adjustments. The following are a number of important telephone features that help hard of hearing individuals communicate effectively on the telephone:

- Adjustable ringing volume and pitch.
- Ability to connect to an additional alerter / alarm system that can alert the individual of the telephone ring when in another room or when outside, in combination with audio, visual and tactile signals if required.
- Built-in or external telephone amplifiers that amplify the incoming speech.
- Captioned telephone services where incoming speech is also displayed as text on a screen (in use only in some countries).
- Built-in inductive coupler that allows use with a hearing aid set to its T setting.
- Tone adjustment which allows the hard of hearing user to make the incoming audio clearer to them.

- Phones with two handsets can be used when a lipspeaker is needed to listen in to the conversation and help interpret it.

Mobile phones

Mobile phones are mostly used as voice phones, but all mobile phones and networks also support the SMS (short text message) service. This can be very useful to hard of hearing people wanting to communicate in text. In some countries, SMS messages can be sent to landlines as well.

Mobile phones are smaller and therefore do not always offer the same degree of adjustment and adaptability as landline phones do. However, some mobiles offer better tone and volume adjustment than other others and also have a built in vibrating alert.

Some mobile phones can cause considerable interference when used near a hearing aid. In such a case, a neck loop can help. The neck loop connects to the mobile phone and helps to reduce interference by keeping the mobile phone at a distance to the hearing aid. Neck loops work with almost any hearing aid that has a T setting.

Before purchasing a mobile phone, it is imperative that each individual tests the phone in the shop to make sure that it has all the features needed and that (if required) it works well with the users' hearing aid.

Internet Telephony / VoIP

More and more people are making and receiving calls over the Internet, using a technology called VoIP ('Voice over IP') or VoB ('Voice over broadband'). This can be done by using either a software client on a computer, via a special VoIP telephone that connects directly to your broadband router/modem or plugs into a PC via a USB connector, or even via normal telephone plugged into a special adaptor.

Before subscribing to a VoIP/VoB package, users should try out the service and make sure that it works well for them. Call quality can be as good as or even better than a normal landline or mobile, but not all software and hardware solutions provide full tone and volume adjustments or suitable alerting tools. In addition, with some VoIP services, it is not possible to make emergency calls.

Text telephony

Not all hard of hearing people are able to use voice telephony. In some countries some form of text telephony is available. Text phones and other real-time text solutions allow people to send and receive text in real-time. Analogue text phones have a keyboard and a display screen. One main draw back of this technology is that both parties participating in the call must have a text phone device. To overcome this limitation some countries have text relay services. When using a text relay service to call a hearing person a relay operator will join the line. The text user can type or speak their conversation to the hearing person, the hearing person will speak their part of the conversation and the relay operator will type exactly what is being said.

Traditional text phones are landline fixed network devices. It is obvious that mobile telephony has dramatically changed the way in which people communicate. Unfortunately

there are not many mobile text phones available. In fact, mobile text phones are only available in a small number of countries, such as the UK.

While mainstream text services used on the Internet, such as Instant Messaging and online chatting have also become popular these services are not always based on real-time text and often cannot be used to make text relay calls to voice phone users. Some solutions have been developed that aim to bring real-time text to mobile and internet devices (such as TalkByText).

Text telephones are used less often today, as young people prefer using mobile phone and Internet services to send and receive messages. These methods are more convenient, and do not depend on a third person to translate but as mentioned previously may be limited in that they do not always allow for real-time text.

Action is needed at both national and international levels to ensure that universal technical solutions are introduced to ensure that deaf, hard of hearing and speech impaired people are able to communicate through real-time character by character text (interactive text), between mobile phones, PSTN text phones, Internet Telephones and PCs. Interactive texting will allow these people to have the same type of telephone experience that people using voice have.

It is essential that interactive text is mainstreamed and becomes a readily available communication service on mainstream telecom networks and terminals. Specialized (and stigmatized) “deaf-only” devices such as analogue text phones are expensive, non-interoperable, and not user friendly. Mobile and IP based networks should provide real-time text using the open industry standard for ToIP. Backward support of legacy PSTN text telephones must be provided at the borders of the network using gateways that translate the interactive ToIP text stream to the analog text protocols such as V.21, DTMF, EDT, Minitel and Baudot and vice versa.

Other Measures

Lighting

Good lighting makes it easier to lip read. It is therefore important that the speaker's face is well lit. The best position in a room is one where the hard of hearing person has his back towards the window so light from the window falls on the speaker's face.

Acoustics

Special building materials and curtains can be used to improve room acoustics by helping to reduce the echo and make listening easier in meeting rooms and the like.

Visual Information

Visual information is of great importance in all situations in which information is conveyed via a loudspeaker. The information can be presented visually on a monitor, an information board or another form of display.

All public transport systems generate noise, both acoustic and inductive, which create a challenging listening situation to both hearing and hard of hearing individuals. In a noisy

train-station, bus terminal, or airport, it is very important that it is possible to be able to read all information that is conveyed over the speaker system. This information must be equivalent in terms of both content and timing. If the visual system is implemented accurately many circumstances of uncertainty and confusion, that are often caused by the miscommunication of information relating to delays and changes to services, can be prevented. As such, it is important for all trains, trams, busses and metros to have visual information displays that provide up to date details about platform numbers, lines, upcoming stops, delays and emergency situations.

Subtitling

Television is important media for sports, entertainment, information and politics. Hard of hearing people should not be excluded from making use of one of the most pervasive entertainment and information mediums of this day and age. The arguments about costs and lack of technical solutions for live subtitling are often incorrect and ultimately not relevant, as the cost of exclusion has been proven to be much larger than the cost of providing access services.

The live subtitling systems available today are mainly manual based, using either a standard keyboard or high-speed input methods such as velotype or palantype. It is also possible to use automatic speech recognition programs to assist the operators in generating the output.

The subtitling can either be in open format, where it is part of the main vision picture, or in closed format, where users can switch it on or off according to their preference and need.

An Accessible Society for Hard of Hearing People

Amongst the most important tasks for organizations of deaf and hard of hearing people is educating and raising awareness about the profile, needs, abilities and preferences of hard of hearing individuals in modern society. The focus should not only be placed on reducing existing barriers but also on preventing the creation of new barriers to opportunity and fulfillment for the hard of hearing population.

Integration of Accessibility for all Social Plans

Accessibility and inclusion should be a key part of all societal planning, design implementation and deployment.

All theaters, cinemas, concert halls and rooms for public meetings should have induction loops or equivalents.

All museums and exhibition halls should have listening systems. If visitors use "audio-guides" or receive other voice information, the ticket office should provide a neck loop or similar equipment for people wearing hearing aid. If the visitors watch films, DVD or video shows of some kind, a loop system or equivalent should be installed in the showroom.

All parts of the public transport systems, including information and ticket offices and the relay of information during travel should be made fully accessible through visual information, induction loops and staff training.

Stations, terminals and airports should have areas and help points with induction loops and visual displays providing real-time information.

Hotels should have accessible rooms with induction loops and alarm facilities suitable for hard of hearing people

All ships carrying passengers should have accessible cabins with appropriate communication and alerting systems. Communal passenger areas onboard the ship should be equipped with visual information displays.

All television programs and films should be subtitled. Equipment for both standard and high definition televisions should fully support closed captioning.

All telephone networks and services should support VoIP real-time text and provide access to a text relay service, while maintaining connectivity to legacy analogue text phones.

Concluding remarks

The above mentioned issues are relevant to people who are hard of hearing universally. There are however numerous factors, including economic situations and degree of technological development that make some of the discussed issues less pertinent in some countries compared to others. It is important to recognize this unfortunate imbalance, and to endeavor to provide accessible communities for all hard of hearing people worldwide.

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If you have any comments, suggestions, useful information or questions about this document, please contact us via e-mail: info@ifhoh.org