deafness research uk

Deafness – the facts

HOW MANY PEOPLE ARE AFFECTED?

- Almost 9 million people in the UK, 1 in 7 of the population, suffer from deafness or experience significant hearing difficulty[i]

CHILDHOOD DEAFNESS

- It is estimated that there are nearly 35,000 children and young people aged 0 - 25 in the UK with permanent deafness (greater than 40dB).
- 840 babies are born every year with impaired hearing in both ears. The vast majority of these are born to hearing parents.
- Around half of those children with a permanent deafness have inherited it from one or both of their parents.[ii]
- Eight in ten children will have had an ear infection by the time they are three years old.
- About 6 % of young children between two and four years of age have a persistent problem with glue ear.
- Worldwide, the main cause of mild to moderate hearing impairment in children is chronic middle ear infection.[iii]

THE COST OF DEAFNESS

- In the UK, the cost of interventions for deaf and hearing impaired people is approximately £214,000 for every 1,000 people affected, over the course of a lifetime.
- The estimated cost to the UK of untreated hearing loss in adults is €22,000,000,000. [iv]

NOISE AND CHILDREN

- Children's toys can produce sound levels of up to 80-110 decibels or dBA.
- Around 6 % of children are thought to suffer hyperacusis (an over-sensitivity to noise).

NOISE AT WORK

- Over one million people are exposed to potentially damaging noise levels in the workplace.[v]
- According to health and safety regulations, employers must take action if workplace noise exceeds 80 dBA.

NOISE AND LEISURE

- The Medical Research Council's Institute of Hearing Research has found that 18.8 % of young people are exposed to loud music for long enough to constitute a hazard to hearing.
- 70 to 80 % of people who visit nightclubs will experience temporary tinnitus, potentially causing longer-term hearing problems.

TINNITUS

- About 10% of adults (4.9 million people in the UK) have experienced tinnitus for longer than five minutes. [vi]
- About 5% of UK adults (2.4 million people) have tinnitus which they find severely or moderately annoying.
- About 0.5% of adults in the UK (242,000 people) have tinnitus which has a severe effect on their ability to lead a normal life.

TECHNOLOGY

- In the UK there are around 2 million people who have hearing aids but they are only used by 1.4 million.[vii]
- There are cochlear 180,000 implant users in the world, and 6,000 have received bilateral implants. There are about 7,000 cochlear implant users in the UK.[viii]
- By the end of 2007, there were more than 40,000 Baha (bone anchored hearing aid) users worldwide.[ix]

DEAFNESS IN LATER LIFE

- Age related hearing loss normally begins at around 50, and 55% of people over 60 are deaf or hard of hearing.[x] Over 70 % of people over 70 have some degree of hearing loss.

CAUSES OF DEAFNESS

- 87% of deafness at all degrees of severity results from damage to the sensitive hair cells within the inner ear or cochlea. This is known as sensorineural deafness.

- Sensorineural deafness can result from exposure to loud noise, viral or bacterial infections, genetic causes, prescribed medicines (including some antibiotics) or simply from old age.

THE SOCIAL IMPACT OF DEAFNESS

- People with acquired hearing loss may experience disassociation from their environment due to the absence of everyday background sounds. This feeling of being 'cut off' from the world can lead to depression. Confidence can be eroded causing people to avoid social contact.

- In cases of profound acquired deafness, speech may be affected, adding to communication difficulties.

- Despite legislation, maintaining, or gaining, employment may be problematic.

- Access to public places may be restricted due to a lack of facilities; for example many hearing aid users require a loop system before they can follow a film or participate in a meeting.

- Deaf people may be more at risk in public places due to a lack of visual or tactile alarm systems.

WHAT IS…?

Acoustic neuroma	Growth of tissue on the eighth cranial nerve. Also known as a vestibular schwannoma
Acoustic trauma	Term referring to noise induced hearing loss.
Acquired hearing loss	Hearing loss that was not present at birth but developed later, either during childhood or adulthood. See also congenital hearing loss.
Air conduction	The transmission of sound through the air to the ear.
Analogue hearing aids	Hearing aids using traditional sound amplification technology.
Anvil	Common name for the middle bone in the ossicular chain (incus).
Assistive devices	Equipment that can help you in your daily life. For example, amplified telephones, loop systems, flashing or vibrating doorbells or baby monitors.
Atresia	Term referring to the closure or occlusion of the external auditory canal.
Attic	Upper part of the middle ear space.
Audiogram	Chart on which the results of an audiometric test are recorded.
Audiology	The study, professional assessment and management of hearing disorders.
Audiometer	Machine used to measure a patient's hearing.
Audiometric test	A test of hearing acuity.
Auditory nerve	Nerve along which the sensory cells (the hair cells) of the inner ear transmit information to the brain.
Auditory brain-stem response (ABR)	A test used to measure activity in the auditory nerve after presentation of sound stimuli.
Auricle	The outer ear. Also known as the pinna.
Barotrauma	Injury to the ear caused by exposure to sudden pressure changes, for example in flying or diving.
Behind-the-ear	Hearing aid worn behind the ear. Also known as a BTE

	hearing aid.
Bilateral hearing loss	Hearing loss in both ears.
Body-worn hearing aid	Rectangular hearing aid carried in an individual's pocket, with a cord connecting the aid to the ear.
Bone-anchored hearing aid	Bone conduction hearing aid which is screwed into the skull behind the ear.
Bone conduction	The transmission of sound through the bones of the skull.
BSL	British Sign Language.
Cerumen	Ear wax.
Cholesteatoma	Progressive, abnormal growth of skin in the middle ear.
Cochlea	The snail-shell shaped organ of the inner ear.
Cochlear implant	A device in which electrodes stimulate the auditory nerve directly. Can improve the hearing abilities of profoundly deaf people.
Conductive deafness	Term used to describe deafness in the outer or middle ear, where deafness is due to sound transmission being obstructed in some way.
Congenital hearing loss	Hearing loss that is thought to have been present at birth, associated with the birth process, or to have developed in the first few days of life.
CROS(Contra lateral routing of signals)	A hearing aid, worn on both ears, for people with a single sided hearing loss. The part worn on the side with hearing loss consists of a microphone to pick up sounds and a transmitter to send them to the hearing aid on the hearing ear.
Cued Speech	A system of hand shapes and placements to aid understanding of spoken language.
Deaf	Generic term used to describe the whole range of people with a hearing loss. Can also mean partially or completely lacking in the sense of hearing. If used with a capital 'D' in the middle of a sentence, it refers to the 'Deaf Community'.
Deafness	The lack or loss of the ability to hear.

Decibel	Unit of sound measurement.
Digital hearing aids	Hearing aids utilising digital sound processing systems, which enable accurate control over the way the sound is reproduced.
Dominant gene	A gene that almost always results in a specific physical characteristic, for example, a disease, even though the patient's genome possesses only one copy.
Eardrum	A thin membrane that separates the outer ear from the middle ear. Its function is to transmit sound from the air to the ossicles inside the middle ear.
Earmould	Part of a hearing aid which is moulded to the shape of the patient's ear, and which is used to keep a hearing aid or its earpiece in place.
Endolymph	Fluid found in part of the cochlea.
ENT	Abbreviation of ear, nose & throat.
Eustachian tube	Tube connecting the ear with the nose and the back of the throat.
External Auditory Canal	The canal leading from the pinna to the eardrum.
Fenestration	Name given to a once common operation for otosclerosis. Now superseded by stapedectomy.
Fingerspelling	System of hand shapes used to form letters.
Genetic counselling	Information and support for families, for example those affected by inherited deafness.
Glue ear	Common name for persistent inflammation of the middle ear. Medical names include otitis media with effusion (OME) and secretory otitis media.
Grommet	A tube inserted into the eardrum to maintain an opening. Commonly used to treat glue ear. Also known as ventilation tubes.
Hair cell	Cells in the cochlea which convert incoming sound vibrations into electrical impulses. So called because of tiny hair-like cilia at the tip.
Hammer	Common name for the first bone in the ossicular chain (the malleus).

Hard-of-hearing	Traditional term to describe hearing impairment or partial deafness.
High frequency hearing loss	Refers to the inability to hear high frequency sounds while still retaining relatively good hearing for low frequencies. This usually impairs speech discrimination. Common in age and noise related deafness.
Hyperacusis	Term used to describe oversensitive hearing.
Idiopathic	A hearing loss, disease or condition which has no known cause.
Incus	Anatomical name for the second bone in the ossicular chain (the anvil).
Induction loop	Device using electromagnetic waves for transmitting sound directly to a hearing aid from an external source such as a microphone, PA system, television or telephone.
In-the-ear hearing aid	Small hearing aid which fits into the outer ear shell. Also known as ITE aid.
Labyrinth	The balance canals in the inner ear.
Low frequency hearing loss	Inability to hear low frequency sounds relative to good hearing at high frequencies.
Malleus	Anatomical name for the first bone in the ossicular chain (the hammer).
Mastoid Bone	A bump on the skull which can be felt behind the ear and holds an air cavity to balance pressure changes across the eardrum.
Ménière's Syndrome	Form of hearing impairment with hearing loss at low frequencies accompanied by associated tinnitus and vertigo.
Middle ear	The part of the ear from the eardrum to the oval window. It includes the ossicles. It is important for transmitting sound from the outer to the inner ear.
Mixed deafness	Involves both outer/middle ear and inner ear.
Nerve deafness	Pre-1970 name for sensorineural deafness.
Ossicles	Collective name for the three bones of the middle ear.
Open-fitting hearing aid	A hearing aid worn behind the ear which does not require an earmould.

Otitis externa	Inflammation or infection of the ear canal or outer ear.
Otitis media (OM)	Acute infection of the middle ear.
Otoacoustic emission	Sounds produced by healthy ears in response to incoming sound.
Otology	The study of the organ of hearing.
Otosclerosis	Condition in which the middle ear ossicles become immobilised.
Ototoxic	Poisonous to the hearing mechanism. Ototoxic drugs include some antibiotics.
Oval window	Thin elastic membrane between the middle ear and the inner ear (or cochlea). Transmits movement from the ossicles.
Peak clipping	A system used in hearing aids to prevent intense sounds from being amplified to uncomfortable levels. It causes some distortion, and in modern hearing aids output limiting is used to achieve a similar effect, but with less distortion.
Perilymph	Fluid found in part of the cochlea. Similar to cerebrospinal fluid.
Pinna	Anatomical name for the outer ear.
Presbyacusis	Age-related deafness.
Pure-tone audiometry	Technique used for measuring hearing accurately across a range of frequencies.
Recessive gene	A gene that only results in a specific physical characteristic, or genetic disorder if a person receives two copies of a mutant gene, one from each parent.
Recruitment	A term used to describe the physical discomfort arising from loud noise, which occurs when the range of hearing has been narrowed due to sensorineural hearing loss.
Round window	A membrane-covered in the bony surround of the inner ear.
Sensorineural deafness	Hearing loss arising from damage or disease in the inner ear. Previously known as nerve or perceptive deafness.
Sign Language	Form of communication used by some deaf people with

	many properties of spoken languages. Utilises hand shapes and position, gestures and facial expression.
SSE (Sign Supported English)	A form of sign language which uses BSL signs and English grammar.
Stapedectomy	Surgical procedure used to re-mobilise the stapes bone in patients with otosclerosis.
Stapes	The third and final bone in the ossicular chain. Also known as the stirrup.
Stirrup	Name given to the stapes due to its shape.
Syndromal deafness	Form of inherited deafness where other characteristics (such as sight problems) are present to some degree.
Temporal bone	Part of the skull housing the inner ear vestibular system.
Threshold of hearing	Minimum level of sound that can be perceived by an individual.
Tinnitus	Noises heard in the ear or head which do not have an external source.
Tympanosclerosis	The thickening of the eardrum.
Tympanum	Anatomical name for the eardrum. Also tympanic membrane.
Unilateral hearing loss	Hearing loss in one ear.
White noise	Sound without structure which is made up of all audible frequencies at the same level. Used in hearing tests or tinnitus maskers.

If you have any questions after reading this factsheet, contact the Deafness Research UK Information Service for further assistance. Our Information team will either answer your enquiry directly or refer it to one of our scientific or medical advisers.

Open: 9.00 a.m. to 5.00 p.m., Monday to Friday (a message can be left at other times).

Freephone: 0808 808 2222

Textphone: 020 7915 1412

E-mail: info@deafnessresearch.org.uk

or click the ‘ask question’ option from our website homepage:
www.deafnessresearch.org.uk

---

[i] Davis, A. (1995), Hearing in Adults. Whurr: London
[ii] Watkin, P. in Ballantyne’s Deafness, 6th edition (2001). Whurr: London
[iii] World Health Organisation http://www.who.int/mediacentre/factsheets/fs300/en/index.html
[iv] Hear-it http://www.hear-it.org/page.dsp?page=5378
[v] Health and Safety Executive http://www.hse.gov.uk/noise/
[vi] Andersson, G., Baguley, D., McKenna, L., McFerran, D., (2005) Tinnitus- A multidisciplinary approach. Whurr : London
[vii] National Institute for Clinical Excellence (2000) Guidelines on Hearing Aid Technology
[viii] The Ear Foundation, (2008). Cochlear Implants
[ix] The Ear Foundation, (2008). BAHA
[x] Royal National Institute for Deaf People, (1999) Report- Breaking the Sound Barrier.

Deafness Research UK is the only national medical research charity dedicated to helping people with deafness, tinnitus or other hearing problems.

Scientists are now predicting much more effective treatments for tinnitus and that a cure for some forms of deafness is not only possible but likely within the next few years. Deafness Research UK is at the forefront of this work.

You can support us by making a donation or joining the Deafness Research UK League of Friends. For more information call us on 0207833 1733 or write to:

Deafness Research UK, 330-332 Gray’s Inn Rd, London WC1X8EE
Charity no. 326915

Reviewed: May 2009