



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 difficulty¹.
- Hearing loss is the most common sensory disability in the developed world and is one of the major reasons for people to be referred to hospital.

CHILDHOOD DEAFNESS

- Ear problems account for a third of visits to the family doctor in a child's first 18 months of life.
- Almost every day 2 babies are born with a clinically significant hearing loss.
- 840 babies are born every year with impaired hearing in both ears.
- 80 per cent of all pre-school children suffer from glue ear at some time.
- Glue ear is the most common reason for pre-school children to visit their family doctor.
- Around half of all cases of glue ear will persist for over three months.

NOISE AND CHILDREN

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

NOISE AT WORK

- Around 1.1 million people are exposed to potentially damaging noise levels in the workplace and a further 170,000 already suffer from noise-related hearing disordersⁱⁱ
- 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 per cent of young people are exposed to loud music for long enough to constitute a hazard to hearing.
- According to the Health and Safety Executive, noise levels exceeding 95 dBA can damage hearing if endured for more than fifteen minutes. Millions of people are exposed to noise levels exceeding 110 dBA for hours at nightclubs each week.
- 70 to 80 per cent of people who visit nightclubs will experience temporary tinnitus, potentially causing longer-term hearing problems.

TINNITUS

- Nearly 5 million people in the UK are affected by tinnitus, the medical name for inexplicable noises in the head or ears.
- About 3.3 million people have been to their GP about tinnitus.
- About 2.3 million people have tinnitus, which makes it difficult for them to sleep.
- About 470,000 people have tinnitus that has a severe effect on their quality of life.
- About 230,000 people have tinnitus which has a severe effect on their ability to lead a normal life.

HEARING AIDS

- In the UK there are around 2 million people who have hearing aids but they are only used by 1.4 million.ⁱⁱⁱ

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^{iv}

CAUSES OF DEAFNESS

- 87% of all deafness results from damage to the sensitive hair cells within the inner ear or cochlea. This is known as sensorineural deafness.
- Sensorineural deafness can be caused by exposure to loud noise, prescribed medicines (including some antibiotics) or simply through 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.
- Difficulties with the use of telecommunications can mean that deaf people find it difficult to access sources of information.

WHAT IS...?

Acoustic neuroma	<i>Growth of tissue on the eighth cranial nerve.</i>
Acoustic trauma	<i>Term referring to noise induced hearing loss.</i>
Air conduction	<i>The transmission of sound through the air to the ear.</i>
Analogue hearing aids	<i>Hearing aids using traditional sound amplification technology.</i>

Anvil	<i>Common name for the middle bone in the ossicular chain (incus).</i>
Atresia	<i>Term referring to the closure or occlusion of the external auditory canal.</i>
Attic	<i>Upper part of the middle ear space.</i>
Audiogram	<i>Chart on which the results of an audiometric test are recorded.</i>
Audiology	<i>The study, professional assessment and management of hearing disorders.</i>
Audiometer	<i>Machine used to measure a patient's hearing.</i>
Audiometric test	<i>A test of hearing acuity.</i>
Auditory brain-stem response (ABR)	<i>Technique used for measuring the activity in the auditory nerve after presentation of sound stimuli.</i>
Auricle	<i>The outer ear. Also known as the pinna.</i>
Behind-the-ear hearing aid	<i>Hearing aid worn behind the ear.</i>
Bilateral hearing loss	<i>Hearing loss in both ears.</i>
Body-worn hearing aid	<i>Rectangular hearing aid carried in an individual's pocket, with a cord connecting the aid to the ear.</i>
Bone-anchored hearing aid	<i>Bone conduction hearing aid which is screwed into the skull behind the ear.</i>
Bone conduction	<i>The transmission of sound through the bones of the skull.</i>
BSL	<i>British Sign Language.</i>
BTE hearing aid	<i>See 'Behind-the-ear hearing aid'.</i>
Cerumen	<i>Ear wax.</i>
Cholesteatoma	<i>Progressive, abnormal growth of skin in the middle ear.</i>
Cochlear	<i>The snail-shell shaped organ of the inner ear.</i>
Cochlear implant	<i>A device in which electrodes stimulate the</i>

auditory nerve directly. Used to restore hearing to profoundly deaf patients.

Conductive deafness	<i>Generic term used to describe deafness in the outer or middle ear, where deafness is due to sound transmission being obstructed in some way.</i>
Cued Speech	<i>A system of hand shapes and placements to aid understanding of spoken language.</i>
Deaf	<i>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'.</i>
Deafness	<i>The lack or loss of the ability to hear.</i>
Decibel	<i>Unit of sound measurement.</i>
Digital hearing aids	<i>Hearing aids utilising digital sound processing systems, which enable accurate control over the way the sound is reproduced.</i>
Dominant gene	<i>The characteristics for which an abnormal version of the gene codes are expressed whenever the gene is present.</i>
Earmould	<i>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.</i>
Endolymph	<i>Fluid found in part of the cochlea.</i>
ENT	<i>Abbreviation of ear, nose & throat.</i>
Eustachian tube	<i>Tube connecting the ear with the nose and the back of the throat.</i>
External Auditory Canal	<i>The canal leading from the pinna to the eardrum.</i>
Fenestration	<i>Name given to a once common operation for otosclerosis. Now superseded by stapedectomy.</i>
Fingerspelling	<i>System of hand shapes used to form letters.</i>
Genetic counselling	<i>Information and support for families, for example those affected by inherited deafness.</i>

Glue ear	<i>Common name for persistent inflammation of the middle ear. Medical names include otitis media with effusion (OME) and secretory otitis media.</i>
Grommet	<i>A tube inserted into the eardrum to maintain an opening. Commonly used to treat glue ear.</i>
Hair cell	<i>Cells in the cochlea which convert incoming sound vibrations into electrical impulses. So called because of tiny hair-like cilia at the tip.</i>
Hammer	<i>Common name for the first bone in the ossicular chain (the malleus).</i>
Hard-of-hearing	<i>Traditional term to describe hearing impairment or partial deafness.</i>
High frequency hearing loss	<i>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.</i>
Hyperacusis	<i>Term used to describe oversensitive hearing.</i>
Hysterical deafness	<i>A term not currently in use for a rare psychological symptom in which hearing is affected although the physiological basis for it is intact. Also known as psychogenic deafness.</i>
Incus	<i>Anatomical name for the second bone in the ossicular chain (the anvil).</i>
Induction loop	<i>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.</i>
In-the-ear hearing aid	<i>Small hearing aid which fits into the outer ear shell.</i>
ITE hearing aid	<i>Abbreviation for in-the-ear hearing aid.</i>
Labyrinth	<i>The balance canals in the inner ear.</i>
Low frequency hearing loss	<i>Inability to hear low frequency sounds relative to good hearing at high frequencies.</i>
Malleus	<i>Anatomical name for the first bone in the ossicular chain (the hammer).</i>

Mastoid Bone	<i>A bump on the skull which can be felt behind the ear and holds an air cavity to balance pressure changes across the eardrum.</i>
Ménière's Syndrome	<i>Form of hearing impairment with hearing loss at low frequencies accompanied by associated tinnitus and vertigo.</i>
Mixed deafness	<i>Involves both outer/middle ear and inner ear.</i>
Nerve deafness	<i>Pre-1970 name for sensorineural deafness.</i>
Non-syndromal deafness	<i>Inherited deafness with no other presenting characteristics.</i>
Ossicles	<i>Collective name for the three bones of the middle ear.</i>
Otitis media (OM)	<i>Acute infection of the middle ear. It is not necessarily associated with the condition OME, or glue ear.</i>
Otoacoustic emission	<i>Sounds produced by healthy ears in response to incoming sound.</i>
Otology	<i>The study of the organ of hearing.</i>
Otosclerosis	<i>Condition in which the middle ear ossicles become immobilised.</i>
Ototoxic	<i>Poisonous to the hearing mechanism. Ototoxic drugs include some antibiotics.</i>
Oval window	<i>Thin elastic membrane between the middle ear and the inner ear (or cochlea). Transmits movement from the ossicles.</i>
Peak clipping	<i>A system used in hearing aids to prevent the amplification of sudden loud noises but at the cost of distortion.</i>
Perilymph	<i>Fluid found in part of the cochlea. Similar to cerebrospinal fluid.</i>
Pinna	<i>Anatomical name for the outer ear.</i>
Presbycusis	<i>Age-related deafness.</i>

Pure-tone audiometry	<i>Technique used for measuring hearing accurately across a range of frequencies.</i>
Recessive gene	<i>The characteristics for which the abnormal gene codes are only expressed if two copies of it, one from the father and one from the mother, are both abnormal.</i>
Recruitment	<i>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.</i>
Round window	<i>A membrane-covered in the bony surround of the inner ear.</i>
Sensorineural deafness	<i>Hearing loss arising from damage or disease in the inner ear. Previously known as nerve or perceptive deafness.</i>
Sign Language	<i>Form of communication used by some deaf people with many properties of spoken languages. Utilises hand shapes and position, gestures and facial expression.</i>
SSE (Sign Supported English)	<i>A form of sign language which uses BSL signs and English grammar.</i>
Stapedectomy	<i>Surgical procedure used to re-mobilise the stapes bone in patients with otosclerosis.</i>
Stapes	<i>The third and final bone in the ossicular chain. Also known as the stirrup.</i>
Stirrup	<i>Name given to the stapes due to its shape.</i>
Syndromal deafness	<i>Form of inherited deafness where other characteristics (such as sight problems) are present to some degree.</i>
Temporal bone	<i>Part of the skull housing the inner ear vestibular system.</i>
Threshold of hearing	<i>Minimum level of sound that can be perceived by an individual.</i>
Tinnitus	<i>Noises heard in the ear or head.</i>
Tympanosclerosis	<i>The thickening of the eardrum.</i>

Tympanum	<i>Anatomical name for the eardrum.</i>
Unilateral hearing loss	<i>Hearing loss in one ear.</i>
White noise	<i>Sound without structure which is made up of all audible frequencies at the same level. Used in hearing tests or tinnitus maskers.</i>

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 that within the next ten to fifteen years there could be a cure for some forms of deafness and much more effective treatments for tinnitus. 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

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

This factsheet has been produced by Deafness Research UK, in consultation with our medical and scientific advisers. Whilst all reasonable efforts have been made to ensure the information and advice given is taken from reputable sources and passed to the public in good faith, no responsibility can be taken on the part of Deafness Research UK or its advisers for any error or omission. You should not act on any advice without first referring to your family doctor or another medically qualified adviser.

Reviewed date: September 2007

ⁱ Davis, A. (1995), *Hearing in Adults*. Whurr: London

ⁱⁱ Royal National Institute for Deaf People (2000) Statistics on deafness

ⁱⁱⁱ National Institute for Clinical Excellence (NICE) Guidelines on Hearing Aid Technology (2000)

^{iv} Royal National Institute for Deaf People (1999) Report – Breaking the Sound Barrier.